CHEMICAL ANALYSES OF WATER SAMPLES FROM THE PICHER MINING AREA, NORTHEAST OKLAHOMA AND SOUTHEAST KANSAS

By David L. Parkhurst

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ABSTRACT

Chemical analyses are presented for 169 water samples from Tar Creek and the Picher lead-zinc mining area in northeast Oklahoma and southeast Kansas. Water samples were taken from November 1983 through February 1986 from the abandoned mines, from points of mine-water discharge, and from surface-water locations upstream and downstream from the mine-discharge area. The pH, temperature, alkalinity, dissolved oxygen, and specific conductance were measured in the field. Laboratory analyses routinely included the major ions plus aluminum, cadmium, copper, iron, lead, manganese, nickel, and zinc. Non-routine analyses of dissolved gases and tritium are presented. Stable carbon-isotope ratios for 11 mine-water samples and three carbonate-rock samples are reported. Miscellaneous stream-discharge measurements made at the time of sampling or taken from gaging-station records are included in the report.

INTRODUCTION

Lead and zinc were mined from the Picher field in northeast Oklahoma and southeast Kansas from about 1905 until the 1960's. The mines, which were from 100 to 500 feet below land surface, were dewatered by extensive pumpage during active mining. After mining ceased, mine dewatering was stopped and the mines subsequently filled with water. About 1980, mine water began discharging from a few mine shafts and air shafts into the Tar Creek basin. Mine water has discharged intermittently since that time.

PURPOSE AND SCOPE

A study of the Picher mining area and Tar Creek was undertaken to determine the chemical evolution of mine water and the effects of mine-water discharge on the chemistry of surface water. The purpose of this report is to present chemical analyses of water samples collected during the study. The only interpretations included in this report are those related to the methods and accuracy of chemical analyses. No interpretations of the data are made in terms of geochemical reactions.

DESCRIPTION OF SAMPLING SITES

In this study 169 water samples were taken at 49 sites from November 1983 through February 1986. Mine-water samples were taken directly from the mines through mine shafts and air shafts. Mine water also was sampled from points where it discharged onto the land surface. Surface-water samples were taken from Tar Creek and its tributaries at locations downstream from mine-water discharge points. Other surface-water samples were taken from Garrett Creek, Lytle Creek, and Tar Creek in stream reaches unaffected by mine-water inflow. Three rock samples were taken from gob piles (rocks piled on the land surface from excavation of a mine shaft).

The sampling sites are shown on figures 1 and 2. Each site is identified by a map number, which is used in all subsequent tables. Table 1 lists information about each site, including the map number; station number, which is the latitude and longitude of the site; the local number, which is a modified legal description (see attachment 1); a descriptive station name; state; and the type of site: Ground water, surface water, or spring.

All water samples were collected and processed by methods outlined in Brown and others (1970) except as noted in the following sections. Filtration and sample-preservation were performed immediately after sample collection. Measurements for pH, temperature, alkalinity, dissolved oxygen, and specific conductance were made in the field. All other analyses were performed in laboratories.

METHODS

Field Methods

Specific conductance, dissolved oxygen, and pH were measured with portable field meters. Temperature was measured with glass thermometers or with the temperature sensors of the specific conductance or dissolved-oxygen meters. Oxidation-reduction potential was measured with a combination platinum electrode with a silver/silver chloride reference. Alkalinity was measured by end-point titration on an untreated aliquot immediately after a sample was obtained. Delay in making the titrations would cause erroneous measurements because of the precipitation of iron oxy-hydroxides.

Surface-water samples for total-recoverable constituents were obtained either directly from the water source or from a 10-liter polyethylene churn splitter. Surface-water samples for dissolved constituents were first obtained in the churn splitter.

Mine-water samples obtained from mine shafts and air shafts were taken by a down-hole sampler in November 1983 and by a submersible pump in March 1984 and June 1985.

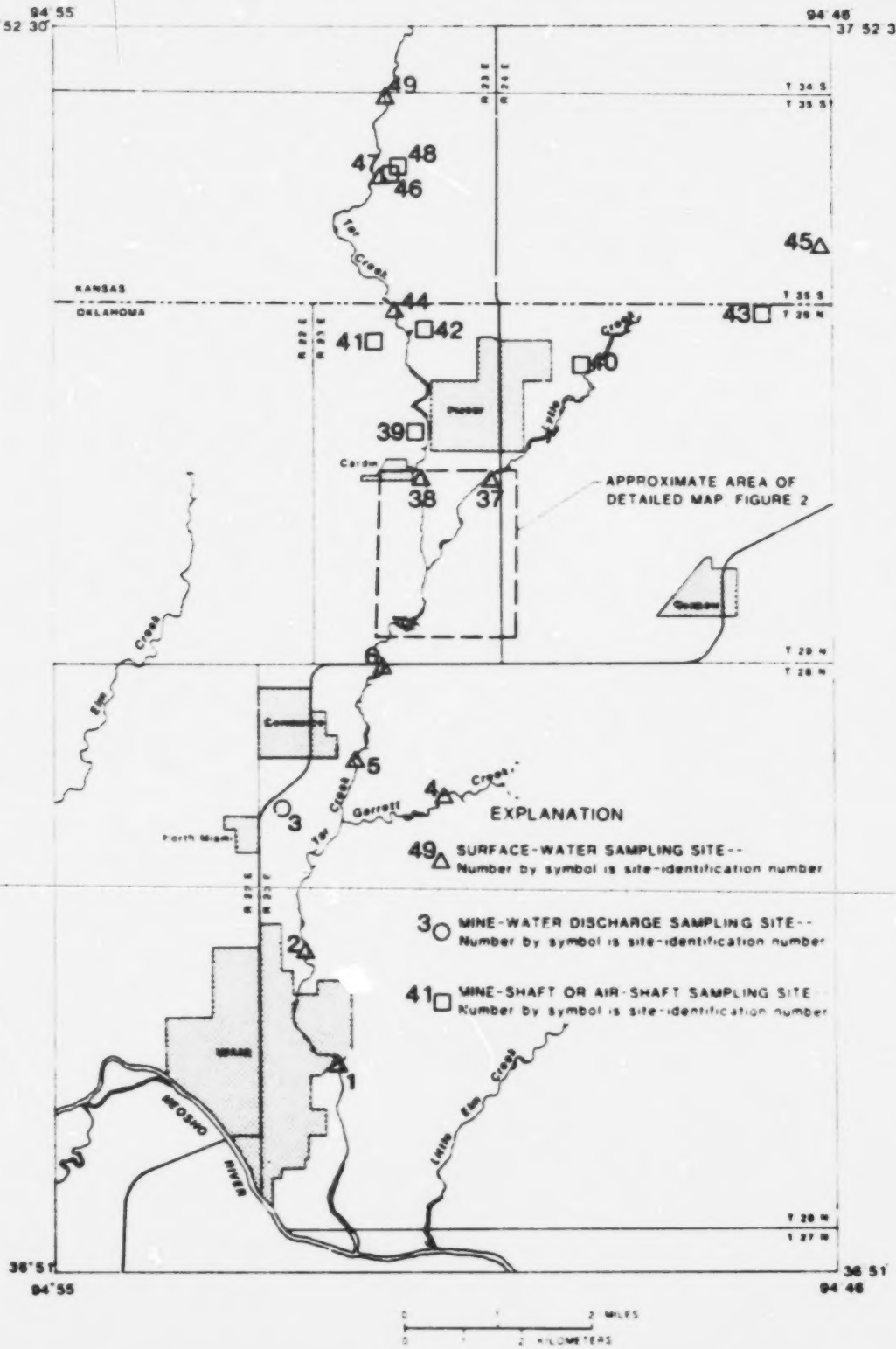

Figure 1.--Locations of sampling sites. (Additional sites shown on detailed map.)

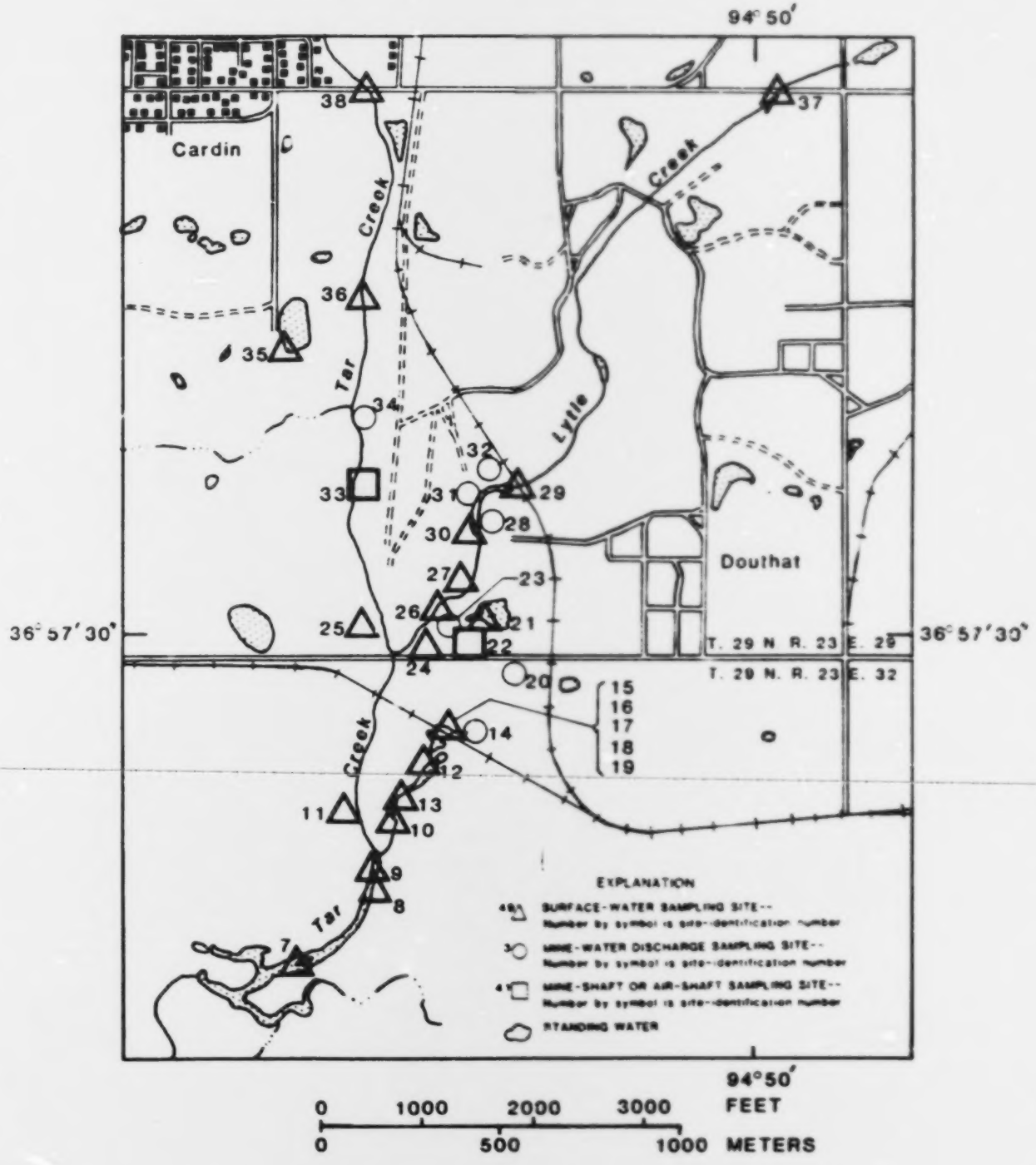

Figure 2.--Detailed map showing locations of sampling sites.

Samples for total-recoverable constituents were placed directly into acid-rinsed polyethylene bottles with no filtration. Samples for dissolved constituents were filtered through 0.2-micrometer membrane filters into acid-rinsed polyethylene bottles. All routine water samples for major elements, trace elements, and nutrients (except nitrite and nitrite plus nitrate) were acidified with concentrated nitric acid. Samples for nitrite or nitrate plus nitrite were acidified with concentrated hydrochloric acid. Acidification of all samples prevented precipitation of iron oxy-hydroxides, which formed within minutes in non-acidified samples.

Dissolved gas samples were taken in a special glass apparatus. Several volumes of water were pumped through a glass cylinder with stopcocks at both ends. The cylinder was sealed with the stopcocks allowing no gas head space. An evacuated side arm attached to the cylinder was then opened to create a gas head space. The entire apparatus was sent to the laboratory for gas analysis. See Hobba and others (1977) for a more complete description of the method.

Water samples for tritium analysis required no special field preparation before shipment to the laboratory. Water samples for stable carbon-isotope analysis were treated with ammoniacal strontium chloride and sent to the laboratory. The three carbonate-rock samples analyzed for stable carbon isotopes required no field preparation.

Some stream discharges at the Tar Creek gaging station were estimated using the instantaneous stage of the stream and the stage-discharge rating curve. All other stream discharges were measured with a pygmy meter or AA meter using methods described in Buchanan and Somers (1969). Discharge measurements were made just before or during the processing of stream-water samples.

Laboratory Analyses

Analyses for most chemical constituents were made by the Central Laboratory of the Water Resources Division in Arvada, Colorado. Dissolved-metal analyses not performed by the Central Laboratory were analyzed by U.S. Geological Survey laboratories in Denver, Colorado and Reston, Virginia. Dissolved gases, tritium, and stable carbon isotopes were analyzed by the U.S. Geological Survey in Reston, Virginia.

Gas chromatography was used to analyze gases in the head space of the gas-sampling apparatus. Dissolved-gas concentrations were calculated from the concentrations of gases in the head space. Stable carbon-isotope ratios were measured by mass spectrometry.

Laboratory analyses of major ions, trace elements, and nutrients were performed by standard methods (Skougstad and others, 1979, and Fishman and Bradford, 1982). Table 2 lists the analytical methods for these chemical constituents. The methods used for each sampling period are given along with the nominal detection limits for each method (Feltz and Anthony, 1984). The detection limits are nominal because they depend on the chemical matrix of a

sample and the dilutions made in the analysis. Because of the unusual chemical composition of the water in this study, particularly the large iron concentrations, the values listed in the table should be considered minimum estimates of the detection limits.

Two problems in the analytical data are noted. (1) The constituents analyzed by chelate extraction should be considered qualitative rather than quantitative. Analytical problems were caused by iron interference in the extraction process. (2) The milliequivalent ion balance between cations and anions is consistently negative, indicating that the sum of anions is too large or that the sum of cations is too small. Comparison of 23 samples analyzed for sulfate by the turbidimetric and ion-chromatographic methods indicated that the turbidimetric method overestimated the sulfate concentration by as much as 20 percent, probably because of the large iron concentrations.

DESCRIPTION OF DATA TABLES

Table 3 is a listing of the stable carbon-isotope analyses for 11 mine-water samples and three carbonate-rock samples. Table 4 is a listing of the concentration of tritium in seven mine-water samples. Table 5 is a listing of the concentrations of dissolved gases in 10 mine-water samples. Table 6 is a listing for all the water samples of the field-measured constituents and physical parameters, stream discharge, the concentrations of major elements, and the concentrations of trace elements.

REFERENCES CITED

Brown, Eugene, Skougstad, M.W., and Fishman, M.J., 1970, Methods for collection and analysis of water samples for dissolved minerals and gases: U.S. Geological Survey Techniques of Water-Resources Investigations, Book 5, Chapter A1, 160 p.

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Fishman, M.J., and Bradford, W.L., 1982, Methods for the determination of inorganic substances in water and fluvial sediments: U.S. Geological Survey Open-File Report 82-272, 136 p.

Hobba, W.A., Jr., Chemerys, J.C., Fisher, D.W., and Pearson, F.J., Jr., 1977, Geochemical and hydrologic data for wells and springs in thermal-spring areas of the Appalachians: U.S. Geological Survey Water-Resources Investigations 77-25, 36 p.

Skougstad, M.W., Fishman, M.J., Friedman, L.C., Erdmann, D.E., and Duncan, S.S., 1979, Methods for determination of inorganic substances in water and fluvial sediment: U.S. Geological Survey Techniques of Water-Resources Investigations, Book 5, Chapter A1, 626 p.

ATTACHMENT 1

Explanation of the site-numbering system

The standard method for describing the location of a data-collection site by fractional section, section, township, and range, usually referred to as the legal description, is replaced in this report by a local identifier, illustrated in the diagram below. By the legal method, the location of the site indicated by the dot would be described as NE 1/4 SW 1/4 NW 1/4, sec. 32, T. 29 N., R. 23 E. The method used in this report changes the order and indicates quarter subdivisions of the sections by letters. By this method, the location of the site is given as 29N-23E-32 BCA. A sequence number is appended to the legal description in order to give a unique identifier to each site. In this example, if the sequence number is 2, the complete identifier is 29N-23E-32 BCA 2.

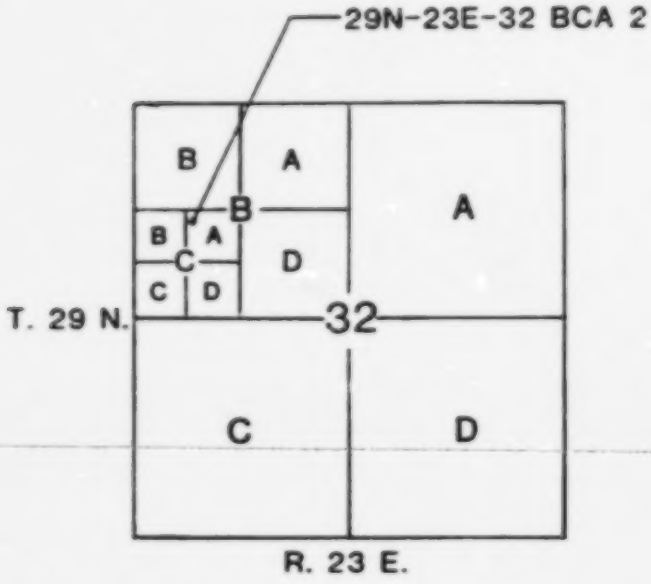

Table 1.--Listing of sampling sites.

[State: OK, Oklahoma; KS, Kansas. Site types: GW, ground water; SW, surface water; SP, spring]

MAP NUMBER	STATION NUMBER	LOCAL IDENTIFIER	STATION DESCRIPTOR	STATE	SITE TYPE
1	365255094514301	29N-23E-30 AAC 1	TAR C AT ROCKDALE BLVD	OK	SW
2	365359094520401	28N-23E-19 ABB 1	OWRB 16, TAR C AT 22ND AVE	OK	SW
3	365522094521501	28N-23E-07 BDD 1	OWRB 14, COMMERCE SPRINGS	OK	SP
4	365523094503201	28N-23E-09 BCC 1	OWRB 15, GARRETT C	OK	SW
5	365544094513201	28N-23E-05 CCC 1	OWRB 5, TAR C NR COMMERCE	OK	SW
6	365637094511201	29N-23E-31 DCD 1	OWRB 10, TAR C AT HWY 66	OK	SW
7	365710094504401	29N-23E-32 BCA 3	TAR C BELOW MINE TRIB	OK	SW
8	365714094504401	29N-23E-32 BCA 1	MINE TRIB AT TAR C, SOUTH	OK	SW
9	365714094504402	29N-23E-32 BCA 2	MINE TRIB AT TAR C, NORTH	OK	SW
10	365715094504301	29N-23E-32 BBD 2	MINE TRIB POND	OK	SW
11	365716094504601	29N-23E-32 BBD 1	TAILINGS DISCHARGE, S OF 4	OK	SW
12	365720094503801	29N-23E-32 BAC 1	MINE TRIB S OF RR CULVERT	OK	SW
13	365720094504001	29N-23E-32 BBD 1	INFLOW TO MINE TRIB POND	OK	SW
14	365723094503501	29N-23E-32 BAB 1	RR BOREHOLE	OK	SP
15	365723094503511	29N-23E-32 BAB11	32 M FROM RR BOREHOLE	OK	SW
16	365723094503512	29N-23E-32 BAB12	16 M FROM RR BOREHOLE	OK	SW
17	365723094503513	29N-23E-32 BAB13	8 M FROM RR BOREHOLE	OK	SW
18	365723094503514	29N-23E-32 BAB14	4 M FROM RR BOREHOLE	OK	SW
19	365723094503520	29N-23E-32 BAB20	MINE TRIB, N OF RR CULVERT	OK	SW
20	365728094502901	29N-23E-32 BAA 1	QUEBEC BOREHOLE	OK	SP
21	365730094503301	29N-23E-29 CDC 3	LAVRION TAILINGS POND/COLLAPSE	OK	SW
22	365730094503801	29N-23E-29 CDC 1	AIR SHAFT PIPE AT SITE 4	OK	GW

Table 1.--Listing of sampling sites--Continued

MAP NUMBER	STATION NUMBER	LOCAL IDENTIFIER	STATION DESCRIPTOR	STATE	SITE TYPE
23	365730094504001	29N-23E-29 CDC 5	OWRB 4S, BOREHOLE DISCHARGE	OK	SP
24	365730094504011	29N-23E-29 CDC 6	WEIR, OWRB SITE 4	OK	SW
25	365730094504601	29N-23E-29 CCD 1	OWRB 4T, TAILINGS RUNOFF	OK	SW
26	365734094503601	29N-23E-29 CDC 4	LYTLE C ABOVE OWRB WEIR	OK	SW
27	365735094503501	29N-23E-29 CDC 2	COLLAPSE DISCHARGE AT LYTLE C	OK	SW
28	365740094502901	29N-23E-29 CDA 1	COLLAPSE E OF LYTLE C	OK	SP
29	365744094502801	29N-23E-29 CAD 2	LYTLE C AT RR CROSSING	OK	SW
30	365744094503200	29N-23E-29 CAC 2	LYTLE C 400 M ABOVE SITE 4	OK	SW
31	365744094503201	29N-23E-29 CAC 1	COLLAPSE W OF LYTLE C	OK	SP
32	365746094503001	29N-23E-29 CAD 1	BOREHOLE NR LYTLE C RR CROSSING	OK	SP
33	365757094505501	29N-23E-29 CBA 1	ADMIRALTY SHAFT	OK	GW
34	365800094504501	29N-23E-29 BCD 1	BOREHOLE IN TAR C	OK	SP
35	365800094505001	29N-23E-29 BCC 1	DOMADO COLLAPSE	OK	SW
36	365807094504301	29N-23E-29 BCA 1	TAR C ABOVE MINE DISCHARGE	OK	SW
37	365811094501301	29N-23E-29 ABD 1	LYTLE C ABOVE MINE DISCHARGE	OK	SW
38	365821094504401	29N-23E-29 BBA 1	TAR C NR CARDIN	OK	SW
39	365845094505201	29N-23E-20 CBB 1	KENOYER SHAFT	OK	GW
40	365926094485501	29N-23E-16 DCA 1	CONSOLIDATED NO. 2 SHAFT	OK	GW
41	365937094511501	29N-23E-18 DBA 1	GORDON AIR SHAFT	OK	GW
42	365942094504201	29N-23E-17 BCD 1	LUCKY SYNDICATE AIR SHAFT	OK	GW
43	365951094464901	29N-23E-14 AAB 1	FARMINGTON SHAFT	OK	GW
44	365956094510701	29N-23E-18 AAC 1	OWRB 7, TAR C AT STATE LINE	OK	SW
45	370015094460601	35S-24E-10 CDA 1	SUNFLOWER COLLAPSE	KS	SW
46	370103094511301	35S-23E-02 DCD 1	MUNCIE SHAFT NR COLLAPSE	KS	GW
47	370103094511701	35S-23E-02 DCD 2	MUNCIE COLLAPSE	KS	SW
48	370108094510701	35S-23E-02 DDB 1	SOUTHERN SHAFT	KS	GW
49	370153094511101	34S-23E-35 DDC 1	TAR C AT RT 166	KS	SW

Table 2.--Listing of analytical methods used during each sampling period

[Method: AA, atomic adsorption spectrophotometry; DCP, direct current plasma emission spectrophotometry; GF, graphite furnace; ICP, induction coupled plasma emission spectrophotometry. Sampling period: x, water samples analyzed by this method during the sampling period. 1 -- November 28-December 2, 1983; 2 -- December 19, 1983; 3 -- February 1984; 4 -- March 1984; 5 -- June 1984; 6 -- October 1984; 7 -- January 1985; 8 -- March 1985; 9 -- April 1985; 10 -- May 14-15, 1985; 11 -- May 30-June 12, 1985; 12 -- July, 1985-Feburary, 1986.]

Parameter Code [1]	Parameter name Method	Method Code [2]	Laboratory Code [3]	Detection Limit [4]	Sampling period 1	2	3	4	5	6	7	8	9	10	11	12
01106	Aluminum (µg/L as Al)															
	AA, Chelation	1052-78	LC0004	10	x	x	x	x	x	x	x	x	x			
	DCP		LC1284	100										x	x	x
01105	Aluminum, Total (µg/L as Al)															
	AA, Chelation	3052-78	LC0003	10	x	x	x	x	x	x	x	x	x			
	AA, Direct	3051-78	LC0109	100										x	x	x
00410	Alkalinity (mg/L as CaCO3)															
	Field end-point titration			5	x	x	x	x	x	x	x	x	x	x	x	x
01000	Arsenic (µg/L as As)															
	AA, hydride	2062-78	LC0112	1								x[6]	x			
01005	Barium (µg/L as Ba)															
	ICP	1472-81	LC0641	2							x	x	x	x	x	x
	ICP	1472-81	LC0655	0.5							x	x	x	x	x	x
01025	Cadmium (µg/L as Cd)															
	AA, Chelation	1136-78	LC0073	1	x	x	x	x	x	x						
	AA, Direct	1135-78	LC0126	10												
	AA, GF	1137-84	LC1250	0.1												x
	ICP	1472-81	LC0673	1	x[5]		x[5]	x[5]	x[5]	x[5]	x	x	x	x	x	
01027	Cadmium, Total (µg/L as Cd)															
	AA, Chelation	3136-78	LC0242	1			x	x		x	x	x	x			
	AA, Direct	3135-78	LC0131	10										x	x	
	AA, GF		LC0713	0.1												x

Table 2.--Listing of analytical methods used during each sampling period--Continued

Parameter Code [1]	Parameter name / Method	Method Code [2]	Laboratory Code [3]	Detection Limit [4]	Sampling period 1	2	3	4	5	6	7	8	9	10	11	12
00915	Calcium (mg/L as Ca)															
	AA, Direct	1152-78	LC0012	0.1	x[5]	x	x[5]	x[5]	x[5]	x[5]						
	ICP	1472-81	LC0659	0.02	x[5]		x[5]	x[5]	x[5]	x[5]	x	x	x	x[9]	x[9]	x
00940	Chloride (mg/L as Cl)															
	Colorimetric	2187-78	LC0015	0.1	x	x										
	Colorimetric	2188-83	LC1213	0.1			x	x	x	x	x	x	x	x	x	x
01035	Cobalt (µg/L as Co)															
	ICP	1472-81	LC0644	3							x	x	x	x	x	x
01037	Cobalt, Total (µg/L as Co)															
	AA, Direct	3239-78	LC0149	50							x	x		x	x	x
01040	Copper (µg/L as Cu)															
	AA, Chelation	1271-78	LC0022	1	x	x	x	x	x	x						
	AA, Direct	1270-78	LC0151	10												
	AA, GF	1272-84	LC1253	0.5												x
01042	Copper, Total (µg/L as Cu)															
	AA, Chelation	3271-78	LC0250	1			x	x		x	x	x	x			
	AA, Direct	3270-78	LC0156	10										x	x	x
00950	Fluoride (µg/L as F)															
	Ion-selective	2327-78	LC0031	0.1	x	x	x	x	x	x	x	x	x	x	x	x
01046	Iron (µg/L as Fe)															
	AA, Direct	1381-78	LC0172	10	x[5]	x	x[5]	x[5]	x[5]	x[5]						
	ICP	1472-81	LC0645	3	x[5]		x[5]	x[5]	x[5]	x[5]	x	x	x	x	x	x
01045	Iron, Total (µg/L as Fe)															
	AA, Direct	3381-78	LC0189	10			x	x		x	x	x	x	x	x	x
01049	Lead (µg/L as Pb)															
	AA, Chelation	1400-78	LC0038	1	x	x	x	x	x	x						
	AA, Direct	1399-78	LC0191	100												
	AA, GF	1401-84	LC1254	0.3											x	x
	ICP	1472-81	LC0646	10							x	x	x	x		

Table 2.--Listing of analytical methods used during each sampling period--Continued

Parameter Code [1]	Parameter name Method	Method Code [2]	Laboratory Code [3]	Detection Limit [4]	Sampling period 1	2	3	4	5	6	7	8	9	10	11	12
01051	Lead, Total (µg/L as Pb)															
	AA, Chelation	3400-78	LC0257	1			x	x		x	x	x				
	AA, Direct	3399-78	LC0192	100									x	x		
	AA, GF	3401-78	LC0710	0.3										x[8]	x	x
01130	Lithium (µg/L as Li)															
	ICP	1472-81	LC0664	4							x	x	x	x	x	x
00925	Magnesium (mg/L as Mg)															
	AA, Direct	1447-78	LC0040	0.1	x[5]	x	x[5]	x[5]	x[5]	x[5]						
	ICP	1472-81	LC0663	0.004	x[5]		x[5]	x[5]	x[5]	x[5]	x	x	x	x	x	x
01056	Manganese (µg/L as Mn)															
	AA, Direct	1454-78	LC0042	10	x[5]	x	x[5]	x[5]	x[5]	x[5]						
	ICP	1472-81	LC0648	1	x[5]		x[5]	x[5]	x[5]	x[5]	x	x	x	x[9]	x[9]	x
01055	Manganese, Total (µg/L as Mn)															
	AA, Direct	3454-78	LC0041	10			x	x		x	x	x	x	x	x	x
01060	Molybdenum (µg/L as Mo)															
	ICP	1472-81	LC0649	10							x	x	x	x	x	x
01065	Nickel (µg/L as Ni)															
	AA, Chelation	1500-78	LC0044	1	x[5]											
	AA, Direct	1499-78	LC0197	100	x	x	x	x	x	x	x	x		x	x	x
	ICP			100									x[7]			
01067	Nickel, Total (µg/L as Ni)															
	AA, Chelation	3500-78	LC0267	1												
	AA, Direct	3499-78	LC0198	100			x	x		x	x	x	x	x	x	x
00608	Nitrogen, dissolved ammonia (mg/L as N)															
	Colorimetric	2523-78	LC0301	0.01	x						x	x	x	x	x	x
00613	Nitrogen, dissolved nitrite (mg/L as N)															
	Colorimetric	2540-78	LC0160	0.01	x											

Table 2.--Listing of analytical methods used during each sampling period--Continued

Parameter Code [1]	Parameter name Method	Method Code [2]	Laboratory Code [3]	Detection Limit [4]	Sampling period 1	2	3	4	5	6	7	8	9	10	11	12
00631	Nitrogen, dissolved nitrite + nitrate (mg/L as N)															
	Colorimetric	2545-78	LC0228	0.1	x											
00666	Phosphorus (mg/L as P)															
	Colorimetric	2600-78	LC0128	0.01	x											
	Colorimetric		LC0829	0.001			x	x	x		x	x	x	x	x	x
00935	Potassium (mg/L as K)															
	AA, Direct	1630-78	LC0054	0.1	x	x	x	x	x	x	x	x	x	x	x	x
01145	Selenium (µg/L as Se)															
	AA, Hydiride	2667-83	LC0087	1									x			
00955	Silica (mg/L as SiO_2)															
	Colorimetric	2700-78	LC0056	0.1	x	x	x	x	x	x						
	ICP	1472-81	LC0667	0.009	x[5]		x[5]	x[5]	x[5]	x[5]	x	x	x	x	x	x
00930	Sodium (mg/L as Na)															
	AA, Direct	1735-78	LC0059	0.1	x	x	x	x	x	x						
	ICP	1472-81	LC0675	0.2	x[5]		x[5]	x[5]	x[5]	x[5]	x	x	x	x	x	x
01080	Strontium (µg/L as Sr)															
	ICP	1472-81	LC0652	0.5							x	x	x	x	x	x
00945	Sulfate (mg/L as SO_4)															
	Turbidimetry	2823-83	LC1200	0.2	x	x	x	x	x	x	x	x	x	x	x	x
01085	Vanadium (µg/L as V)															
	ICP	1472-81	LC0653	6							x	x	x	x	x	x
01090	Zinc (µg/L as Zn)															
	AA, Direct	1900-78	LC0067	10	x	x	x	x	x	x						
	ICP	1472-81	LC0671	3	x[5]		x[5]	x[5]	x[5]	x[5]	x	x	x	x[9]	x[9]	x
01092	Zinc, Total (µg/L as															
	AA, Direct	3900-78	LC0296	10			x	x		x	x	x	x	x	x	x

[1] The parameter codes are used to designate chemical constituents in the WATSTORE data base of the U.S. Geological Survey and in the STORET data base of the Environmental Protection Agency.

[2] Method codes used by the U.S. Geological Survey Central Laboratory to designate analytical methods.

[3] The laboratory codes are used by the U.S. Geological Survey Central Laboratory to designate analytical methods (Feltz and Anthony, 1984).

[4] Detection limits are dependent on sample composition. Detection limits for samples from this study are probably higher than the nominal detection limits given in the table.

[5] The following samples (designated by date and time) are the only samples taken during sampling periods 1 through 6 which were run with this method: 12-02-83 at 9:30, 12-02-83 at 14:45, 2-16-84 at 10:10, 3-19-84 at 9:00, 3-20-84 at 16:00, 6-8-84 at 12:30, 6-8-84 at 15:00, 6-11-84 at 15:00, 6-11-84 at 20:00, 6-12-84 at 16:30, 6-12-84 at 17:00, 6-12-84 at 20:00.

[6] Arsenic data for sample period 8 was run as part of an arsenic research project (Alan Welch, U.S. Geological Survey, Carson City, NV, written commun., 1985).

[7] Copper and nickel analyses were run by ICP in a U.S. Geological Survey research laboratory (Michael Reddy, U.S. Geological Survey, Federal Center, Denver, CO, written commun., 1985).

[8] Lead was run by graphite furnace on the sample taken on 5-15-85 at 12:00.

[9] The following samples (designated by date and time) were analyzed in a U.S. Geological Survey laboratory in Reston, VA: 05-15-85 at 13:15, 05-15-85 at 13:20, 05-15-85 at 13:30, 05-15-85 at 13:50, 05-15-85 at 14:00, 05-15-85 at 14:30, 06-04-85 at 17:00, 06-06-85 at 07:45, 06-06-85 at 08:30, 06-06-85 at 10:00, 06-06-85 at 11:00, 06-06-85 at 11:30, 06-06-85 at 12:30, and 06-12-85 at 14:30. (Michael Doughten, U.S. Geological Survey, National Center, Reston, VA, written commun., 1986).

Table 3.--Stable carbon-isotope ratios for mine-water and rock samples

MAP NUMBER	STATION NUMBER	DATE	TIME	SAMPLING DEPTH (FEET)	$^{13}C/^{12}C$ RATIO WATER (PER MIL)	$^{13}C/^{12}C$ RATIO ROCK (PER MIL)
3	365522094521501	06-10-85	10:15	--	-11.1	--
14	365723094503501	06-08-85	13:00	--	-8.7	--
21	365730094503301	06-10-85	15:00	--	--	0.8[a]
21	365730094503301	06-10-85	15:30	--	--	-1.2[b]
23	365730094504001	06-08-85	10:45	--	-8.8	--
31	365744094503201	06-08-85	11:15	--	-7.4	--
33	365757094505501	06-11-85	16:00	190	-8.5	--
39	365845094505201	06-11-85	08:30	182	-8.1	--
40	365926094485501	06-11-85	11:00	--	--	-7.9[c]
40	365926094485501	06-11-85	11:15	228	-9.4	--
42	365942094504201	06-12-85	16:15	110	-7.4	--
43	365951094464901	06-12-85	13:30	140	-7.6	--
43	365951094464901	06-12-85	14:00	176	-8.3	--
43	365951094464901	06-12-85	14:30	194	-8.2	--

[a] Mississipian limestone.
[b] Secondary crystaline dolomite.
[c] Secondary calcite rhombohedra.

Table 4.--Concentration of tritium in mine-water samples

[pCi/L, picocuries per liter]

MAP NUMBER	STATION NUMBER	DATE	TIME	SAMPLING DEPTH (FEET)	TRITIUM (pCi/L)
33	365757094505501	06-11-85	16:00	190	67.7
39	365845094505201	06-11-85	08:30	182	69.2
40	365926094485501	06-11-85	11:15	228	71.4
42	365942094504201	06-12-85	16:15	110	44.1
43	365951094464901	06-12-85	13:30	140	44.8
43	365951094464901	06-12-85	14:00	176	82.1
43	365951094464901	06-12-85	14:30	194	63.7

Table 5.--Concentrations of dissolved gases in mine-water samples.

[mg/L, milligrams per liter; N_2, molecular nitrogen; O_2, molecular oxygen; Ar, argon; CH_4, methane; CO_2, carbon dioxide]

MAP NUMBER	STATION NUMBER	DATE	TIME	SAMPLING DEPTH (FEET)	N_2 (mg/L)	O_2 (mg/L)	Ar (mg/L)	CH_4 (mg/L)	CO_2 (mg/L)
14	365723094503501	03-21-84	14:30	-- [a]	27	0.09	0.82	0.03	578
22	365730094503801	03-19-84	15:45	-- [a]	29	0.1	0.84	0.02	570
33	365757094505501	03-23-84	09:30	180	33	0.1	0.96	0.09	535
33	365757094505501	03-23-84	10:30	55	41	0.09	1.10	0.39	382
39	365845094505201	03-22-84	09:30	185	30	0.36	0.94	0.09	435
40	365926094485501	03-22-84	13:45	225	28	0.03	0.85	0.03	668
42	365942094504201	03-23-84	13:00	110	7.9	0.09	0.14	0.02	254
43	365951094464901	03-22-84	16:00	140	24	0.15	0.74	0.04	176
43	365951094464901	03-22-84	17:00	176	18	0.08	0.56	0.04	824
43	365951094464901	03-22-84	17:15	192	23	0.2	0.72	0.62	1150

[a] Mine-water discharges at land surface.

Table 6.--Concentrations of chemical constituents and measurements of physical parmeters

[mg/L, milligrams per liter; µg/L micrograms per liter; <, concentration is less than indicated value; E, value is estmated. Site types: GW, ground water; SW, surface water; SP, spring. Streamflow: ft^3/s, cubic feet per second. Specific conductance: µS/cm, microseimens per centimeter. Temperature: °C, degrees Celsius. Oxidation-reduction potential: mv, millivolts relative to standard hydrogen electrode.]

MAP NUMBER	STATION NUMBER	DATE	TIME	SITE	SAMPLING DEPTH (feet) (00003)	STREAMFLOW, INSTANTANEOUS (ft^3/s) (00061)	SPECIFIC CONDUCTANCE (µS/cm) (00095)	SPECIFIC CONDUCTANCE LAB (µS/cm) (00995)	PH (standard units) (00400)	OXIDATION REDUCTION POTENTIAL (mv) (00090)	TEMPERATURE (°C) (00010)
1	365255094514301	06-12-84	2000	SW	--	7.3	--	1,920	4.10	590	26.0
		01-10-85	0900	SW	--	100	1,570	1,400	5.90	--	3.5
		03-26-85	0730	SW	--	45	--	1,950	5.80	295	17.5
		06-04-85	1130	SW	--	13	--	1,620	5.80	260	24.5
		04-18-85	0900	SW	--	19	--	1,990	5.60	380	18.0
2	365359094520401	06-11-84	1130	SW	--	9.2	2,280	2,330	3.60	600	23.0
		10-18-84	1100	SW	--	2.4	1,090	1,100	6.20	--	16.0
		01-09-85	0815	SW	--	27	1,910	1,570	5.70	350	5.0
		03-27-85	0730	SW	--	31	860	2,150	5.80	270	15.0
		03-29-85	1010	SW	--	E380	--	456	5.70	--	17.0
		04-24-85	1245	SW	--	11	2,130	--	5.30	--	18.5
		05-15-85	1200	SW	--	70	1,280	--	6.40	--	17.5
		08-14-85	1455	SW	--	31	--	--	--	--	25.0
		10-16-85	1400	SW	--	48	1,090	--	6.70	--	16.0
		10-18-85	1450	SW	--	1220	715	--	6.30	--	18.5
		02-13-86	1200	SW	--	17	1,730	--	6.52	--	1.5
		09-12-85	1440	SW	--	3.3	--	--	--	--	23.5
		04-17-85	0800	SW	--	20	1,840	1,880	5.80	260	18.0
		02-16-84	1010	SW	--	9.5	1,890	1,990	6.20	--	9.5
		03-19-84	0900	SW	--	1770	1,260	1,150	6.20	--	8.5
		03-20-84	1600	SW	--	115	1,170	1,160	6.30	270	9.0
		08-21-84	1016	SW	--	0.21	3,650	3,580	2.80	790	25.5
		05-14-85	0930	SW	--	500	--	1,180	6.20	170	17.0
		05-30-85	0900	SW	--	20	--	1,080	6.20	370	19.0
		06-01-85	0830	SW	--	6.5	--	--	5.20	--	21.5
		06-02-85	0915	SW	--	39	--	1,400	5.90	390	20.5
		06-03-85	1815	SW	--	9.2	--	1,710	5.50	210	26.5
		06-05-85	0840	SW	--	30	--	1,910	6.10	270	22.5
		06-07-85	0845	SW	-	630	--	1,290	6.20	320	20.5
		06-08-85	0815	SW	--	82	--	1,240	6.30	270	22.5

Table 6.--Concentrations of chemical constituents and measurements of physical parameters--Continued

MAP NUMBER	STATION NUMBER	DATE	TIME	SITE	SAMPLING DEPTH (feet) (00003)	STREAMFLOW, INSTANTANEOUS (ft^3/s) (00061)	SPECIFIC CONDUCTANCE (µS/cm) (00095)	CONDUCTANCE LAB (µS/cm) (90095)	PH (standard units) (00400)	OXIDATION REDUCTION POTENTIAL (mv) (00090)	TEMPERATURE (°C) (00010)
		06-09-95	0945	SW	--	35	--	1,490	6.10	440	25.0
		06-12-95	0800	SW	--	72	--	1,320	6.40	340	20.0
		08-23-95	0730	SW	--	665	--	--	--	--	--
3	365522094521501	06-14-94	1130	SP	--	0.32	--	3,940	6.10	190	21.0
		06-10-95	1015	SP	--	--	--	3,970	5.90	260	18.0
		03-29-95	0830	SP	--	E0.4	--	3,960	5.70	250	17.5
4	365523094503201	06-05-95	0915	SW	--	--	--	229	7.20	210	22.0
5	365544094513201	06-12-94	1500	SW	--	5.1	--	2,510	6.00	230	25.0
		03-29-95	0930	SW	--	37	--	1,920	5.90	255	18.0
		06-04-95	1000	SW	--	10	--	2,130	6.30	230	23.0
6	365637094511201	06-13-94	1200	SW	--	4.7	--	2,770	5.90	300	--
		05-31-95	0900	SW	--	--	--	1,920	6.30	395	20.5
		05-14-95	1600	SW	--	220	--	1,200	6.10	190	17.0
		06-02-95	1200	SW	--	--	--	1,890	6.20	180	22.0
		06-09-95	1215	SW	--	--	--	1,600	6.20	250	25.0
7	365710094504401	06-11-94	1800	SW	--	5.6	--	2,620	5.50	230	--
		01-09-95	1415	SW	--	24	--	692	5.70	--	6.0
		03-27-95	1100	SW	--	23	1,640	2,240	5.70	170	15.0
		06-03-95	1010	SW	--	10	--	2,250	6.00	220	24.0
		04-17-95	1000	SW	--	17	--	2,200	5.60	270	18.5
8	365714094504401	03-21-94	1100	SW	--	--	3,200	3,500	3.80	450	15.0
		06-10-94	1730	SW	--	--	--	3,250	3.00	655	30.0
		01-09-95	1600	SW	--	1.9	--	3,120	5.30	--	--
		03-27-95	1130	SW	--	1.5	3,150	3,330	3.50	450	16.5
		05-15-95	1300	SW	--	--	--	3,270	4.30	240	22.5
		04-17-95	1030	SW	--	1.1	--	3,620	4.50	390	19.0
9	365714094504402	06-06-95	1230	SW	--	--	--	3,500	3.70	440	21.0
		06-03-95	1030	SW	--	0.96	--	3,630	3.50	340	24.5
		05-15-95	1315	SW	--	--	--	3,310	4.10	250	23.0
10	365715094504301	06-10-94	1530	SW	--	--	--	3,310	2.90	695	34.0
		05-31-95	1600	SW	--	--	--	3,740	3.40	370	31.0
		06-06-95	0830	SW	--	--	--	3,550	4.50	410	20.0
		05-15-95	1320	SW	--	--	--	3,310	4.00	250	24.0
		04-18-95	1530	SW	--	--	3,490	3,720	3.20	520	27.0
11	365716094504601	06-03-95	1045	SW	--	--	--	2,290	7.70	235	26.0

Table 6.--Concentrations of chemical constituents and measurements of physical parameters--Continued

MAP NUMBER	STATION NUMBER	DATE	TIME	SITE	SAMPLING DEPTH (feet) (00003)	STREAMFLOW, INSTANTANEOUS (ft^3/s) (00061)	SPECIFIC CONDUCTANCE (µS/cm) (00095)	SPECIFIC CONDUCTANCE LAB (µS/cm) (90095)	PH (standard units) (00400)	OXIDATION REDUCTION POTENTIAL (mv) (00090)	TEMPERATURE (°C) (00010)
12	365720094503801	03-21-84	1530	SW	--	--	3,400	3,630	4.90	395	15.0
		06-06-85	1130	SW	--	--	--	3,570	5.40	350	19.0
		05-15-85	1350	SW	--	--	--	3,410	5.10	220	21.0
13	365720094504001	03-29-85	1700	SW	--	E1.4	--	3,470	3.50	610	23.0
		06-06-85	0745	SW	--	--	--	3,580	5.10	400	19.5
		05-15-85	1330	SW	--	--	--	3,360	4.20	260	24.5
		04-18-85	1600	SW	--	--	3,480	3,700	3.50	510	26.5
14	365723094503501	03-21-84	1430	SP	--	--	3,610	3,800	5.30	335	15.0
		06-06-84	1900	SP	--	--	3,440	3,690	5.40	295	15.5
		03-29-85	1500	SP	--	E1.2	--	3,540	5.50	300	15.0
		06-06-85	1000	SP	--	--	--	3,690	5.60	360	15.5
		05-15-85	1400	SP	--	--	--	3,350	5.00	140	15.0
		04-18-85	1330	SP	--	--	3,450	3,610	5.00	330	15.5
15	365723094503511	06-06-84	1030	SW	--	--	3,430	3,730	5.20	290	17.0
		05-15-85	1430	SW	--	--	--	3,480	5.40	190	17.0
15	365723094503511	04-18-85	1030	SW	--	--	3,450	3,610	5.30	330	16.0
16	365723094503512	06-06-84	1250	SW	--	--	3,450	3,700	5.30	285	16.5
17	365723094503513	06-06-84	1800	SW	--	--	3,370	3,710	5.40	290	16.0
		04-18-85	1400	SW	--	--	3,430	3,620	5.20	340	15.5
18	365723094503514	06-06-84	1830	SW	--	--	3,430	3,690	5.40	--	15.5
19	365723094503520	06-10-84	1400	SW	--	--	E3,000	3,700	5.20	320	19.5
		06-06-85	1100	SW	--	--	--	3,680	5.60	350	17.0
		04-18-85	1000	SW	--	--	3,410	3,670	5.30	330	18.0
20	365728094502901	03-21-84	1800	SP	--	--	3,200	3,290	5.20	340	--
21	365730094503301	06-08-84	1730	SW	--	--	1,550	1,540	4.20	620	26.5
22	365730094503801	11-28-83	1535	GW	180	--	4,500	4,410	4.80	--	--
		11-28-83	1615	GW	145	--	3,500	3,610	4.70	--	--
		11-28-83	1700	GW	160	--	4,300	4,060	5.90	--	--
		03-19-84	1545	GW	--	--	4,470	3,760	4.50	370	15.0
		08-21-85	1230	GW	184	--	4,420	4,820	5.50	--	15.5
		08-21-85	1235	GW	184	--	4,420	--	5.50	--	15.5
		08-21-85	1100	GW	135	--	3,100	3,510	5.20	--	15.5
		08-21-85	1200	GW	160	--	3,900	4,240	5.70	--	15.5
23	365730094504001	12-01-83	1615	SP	--	--	4,350	3,960	5.50	--	20.0
		12-19-83	0900	SP	--	--	E4,800	3,550	5.40	--	16.0

Table 6.--Concentrations of chemical constituents and measurements of physical parmeters--Continued

MAP NUMBER	STATION NUMBER	DATE	TIME	SITE	SAMPLING DEPTH (feet) (00003)	STREAMFLOW, INSTANTANEOUS (ft^3/s) (00061)	SPECIFIC CONDUCTANCE (µS/cm) (00095)	SPECIFIC CONDUCTANCE LAB (µS/cm) (90095)	PH (standard units) (00400)	OXIDATION REDUCTION POTENTIAL (mv) (00090)	TEMPERATURE (°C) (00010)
		12-19-83	0930	SP				3,400	4.70		16.0
		02-16-84	1315	SP	--	1.0	4,240	4,210	5.40	--	15.0
		06-13-84	1900	SP	--	--	--	4,250	5.60	285	16.0
		03-28-85	1130	SP	--	1.6	3,920	3,980	5.40	275	15.0
		01-09-85	1515	SP	--	1.7	--	3,930	5.30	--	15.5
		06-04-85	1700	SP	--	--	--	3,950	5.40	250	15.5
24	365730094504011	06-13-84	1800	SW	--	1.1	--	4,250	5.70	330	16.0
25	365730094504601	05-15-85	0930	SW	--	--	--	2,460	6.90	180	--
26	365734094503601	01-09-85	1450	SW	--	13	--	2,060	5.70	--	6.0
27	365735094503501	03-27-85	1600	SW	--	4.6	--	3,990	5.70	120	18.0
28	365740094502901	06-08-84	1100	SW	--	--	4,380	4,410	3.00	640	25.0
29	365744094502901	06-03-85	1430	SW	--	3.2	--	1,630	6.00	180	26.5
		04-17-85	1700	SW	--	6.0	--	1,680	5.60	330	22.5
30	365744094503200	03-27-85	1500	SW	--	9.9	--	2,210	5.60	150	18.0
31	365744094503201	06-08-84	1020	SW	--	--	4,110	4,200	5.50	270	18.0
		06-07-85	1220	SW	--	41	--	4,460	5.80	220	15.5
32	365746094503001	06-03-85	1445	SP	--	E1.0	--	4,320	4.90	150	15.5
		04-17-85	1730	SP	--	--	--	4,160	5.50	260	15.5
33	365757094505501	11-29-83	1415	CW	150		--	4,450	4,010	5.70	--	19.0
		11-29-83	1530	CW	150		--	4,450	3,930	5.80	--	19.0
33	365757094505501	03-23-84	0930	CW	180		--	4,100	4,090	5.70	200	15.0
		03-23-84	1030	CW	55.0		--	3,290	3,220	5.90	170	13.5
		06-11-85	1600	CW	190		--	--	4,020	5.90	320	18.0
34	365800094504501	02-16-84	1600	SP	--	--	4,240	4,050	5.70	--	15.5
		03-27-85	1700	SP	--	0.53	--	3,660	5.60	260	15.5
		06-03-85	1615	SP	--	0.4	--	3,940	5.10	130	16.5
		01-09-85	1115	SP	--	0.62	5,300	3,700	5.50	--	15.5
		04-17-85	1400	SP	--	0.49	3,700	3,940	5.20	220	15.5
35	365800094505001	06-08-84	1630	SW	--	--	2,440	2,410	7.70	410	25.5
36	365807094504301	06-11-84	1500	SW	--	1.4	1,020	990	7.30	390	26.5
		01-09-85	1100	SW	--	6.7	740	2,030	6.20	370	3.0
		03-27-85	1730	SW	--	8.6	--	739	7.30	350	19.0
		06-03-85	1600	SW	--	3.2	--	911	7.10	210	27.5
		04-17-85	1430	SW	--	5.4	711	723	6.60	330	22.0
37	365811094501301	06-11-84	2000	SW	--	0.78	--	978	7.40	400	--

Table 6.--Concentrations of chemical constituents and measurements of physical parmeters--Continued

MAP NUMBER	STATION NUMBER	DATE	TIME	SITE	SAMPLING DEPTH (feet) (00003)	STREAMFLOW, INSTANTANEOUS (ft^3/s) (00061)	SPECIFIC CONDUCTANCE ($\mu S/cm$) (00095)	SPECIFIC CONDUCTANCE LAB ($\mu S/cm$) (90095)	PH (standard units) (00400)	OXIDATION REDUCTION POTENTIAL (mv) (00090)	TEMPERATURE (°C) (00010)
		06-03-85	1730	SW	--	--	--	917	8.90	160	29.0
		05-14-85	1300	SW	--	53	--	356	7.00	290	17.5
38	365821094504401	05-14-85	1430	SW	--	85	--	254	7.00	380	17.5
39	365945094505201	11-29-83	1030	GW	184		--	4,000	3,560	5.60	--	19.0
		11-29-83	1120	GW	194		--	3,950	3,460	5.60	--	--
		03-22-84	0930	GW	195		--	3,600	3,520	5.70	240	16.0
		06-11-85	0840	GW	192		--	--	--	5.90	300	18.0
		06-11-85	0830	GW	192		--	--	3,330	5.90	300	18.0
40	365926094495501	11-30-83	0900	GW	226		--	4,050	3,570	5.70	--	17.0
		03-22-84	1345	GW	225		--	4,080	3,980	5.70	240	15.5
		06-11-85	1115	GW	228		--	--	4,020	5.90	350	17.5
41	365937094511501	11-30-83	1445	GW	170		--	4,700	4,270	5.70	--	19.0
42	365942094504201	11-30-83	1130	GW	70.0		--	2,750	2,550	6.70	--	19.0
		11-30-83	1200	GW	110		--	5,400	4,950	6.20	--	19.0
		03-23-84	1300	GW	110		--	4,830	5,060	6.00	230	17.5
		06-12-85	1615	GW	110		--	--	--	6.15	300	18.5
43	365951094464901	12-01-83	1200	GW	138		--	2,800	2,510	6.40	--	16.0
		12-01-83	1315	GW	176		--	3,950	3,350	6.00	--	17.5
		12-01-83	1345	GW	192		--	4,650	4,230	5.60	--	18.0
		03-22-84	1600	GW	140		--	2,730	2,690	6.40	190	15.5
		03-22-84	1700	GW	176		--	3,810	3,470	6.00	205	15.5
		03-22-84	1715	GW	192		--	4,730	4,490	5.60	240	15.5
		06-12-85	1330	GW	140		--	--	2,560	6.50	360	17.0
		06-12-85	1400	GW	176		--	--	3,490	6.10	140	17.0
		06-12-85	1430	GW	194		--	--	4,200	5.68	330	17.5
44	365956094510701	06-12-84	1700	SW	--		--	--	1,150	7.80	525	32.0
		06-05-85	1450	SW	--	E50	--	462	7.00	350	24.0
		06-09-85	1115	SW	--	E3.5	--	329	7.00	290	26.0
45	370015094460601	06-08-84	1400	SW	--	--	2,990	2,920	3.10	760	25.0
46	370103094511301	12-02-83	0930	GW	100		--	485	433	6.60	--	20.0
47	370103094511701	06-08-84	1500	SW	--	--	--	613	605	8.10	350	25.5
48	370108094510701	12-02-83	1145	GW	200		--	580	536	6.90	--	19.5
49	370153094511101	06-12-84	1630	SW	--	--	--	--	136	6.90	500	--
		06-05-85	1600	SW	--	--	--	--	149	6.60	370	24.0

Table 6.--Concentrations of chemical constituents and measurements of physical parmeters--Continued

MAP NUMBER	STATION NUMBER	DATE	CALCIUM DISSOLVED (mg/L as Ca) (00915)	MAGNESIUM, DISSOLVED (mg/L as Mg) (00925)	SODIUM, DISSOLVED (mg/L as Na) (00930)	POTASSIUM, DISSOLVED (mg/L as K) (00935)	ALKALINITY WH WAT TOTAL FIELD mg/L as $CaCO_3$ (00410)	SULFATE DISSOLVED (mg/L as SO_4) (00945)	CHLORIDE, DISSOLVED (mg/L as Cl) (00940)	FLUORIDE, DISSOLVED (mg/L as F) (00950)	SILICA, DISSOLVED (mg/L as SiO_2) (00955)
1	365255094514301	06-12-84	270	69	40	5.0	0	1,100	13	1.2	13
		01-10-85	190	51	24	3.5	56	800	9.5	1.0	9.8
		03-28-85	280	86	40	4.0	28	1,200	12	1.2	11
		06-04-85	230	60	34	4.7	13	910	16	1.2	11
		04-18-85	270	76	36	4.2	15	1,200	12	1.1	11
2	365359094520401	06-11-84	310	88	38	3.8	0	1,400	9.7	2.0	14
		10-18-84	160	35	43	6.1	67	520	29	1.3	7.9
		01-09-85	240	65	27	3.6	68	1,000	8.3	1.1	11
		03-27-85	290	87	41	4.5	33	1,300	12	1.2	12
		03-29-85	56	15	8.6	2.9	--	200	1.9	0.4	4.8
		04-24-85	--	--	--	--	--	--	--	--	--
		05-15-85	--	--	--	--	--	--	--	--	--
		08-14-85	--	--	--	--	--	--	--	--	--
		10-16-85	--	--	--	--	--	--	--	--	--
		10-18-85	--	--	--	--	--	--	--	--	--
		02-13-86	--	--	--	--	--	--	--	--	--
		09-12-85	--	--	--	--	--	--	--	--	--
		04-17-85	270	74	33	3.9	29	1,100	10	1.0	11
		02-16-84	280	72	38	4.9	33	1,200	12	1.5	10
		03-19-84	120	49	18	2.9	53	670	4.6	1.2	7.9
		03-20-84	130	47	21	3.1	60	670	5.6	1.1	9.0
		08-21-84	490	120	110	12	0	2,200	36	1.7	14
		05-14-85	140	50	19	3.3	53	650	4.6	1.0	8.6
		05-30-85	150	35	20	4.0	28	560	13	0.8	8.4
		06-01-85	--	--	--	--	--	--	--	--	--
		06-02-85	180	48	24	4.2	15	750	11	0.8	8.4
		06-03-85	240	63	31	4.0	13	950	13	1.1	11
		06-05-85	230	65	31	4.2	20	1,100	9.7	1.0	11
		06-07-85	140	49	20	3.9	60	680	7.8	0.9	8.8
		06-08-85	160	51	22	4.0	53	680	9.5	1.0	10
		06-09-85	200	60	26	3.9	30	840	9.9	1.2	11
		06-12-85	180	52	24	3.6	60	720	8.9	1.1	11
		08-23-85	--	--	--	3.6	--	600	3.3	0.8	--
3	365522094521501	06-14-84	620	150	130	15	550	2,700	41	2.8	9.2
		06-10-85	610	140	120	15	560	2,800	46	1.4	12

Table 6.--Concentrations of chemical constituents and measurements of physical parameters--Continued

MAP NUMBER	STATION NUMBER	DATE	CALCIUM DISSOLVED (mg/L as Ca) (00915)	MAGNESIUM, DISSOLVED (mg/L as Mg) (00925)	SODIUM, DISSOLVED (mg/L as Na) (00930)	POTASSIUM, DISSOLVED (mg/L as K) (00935)	ALKALINITY WH WAT TOTAL FIELD mg/L as $CaCO_3$ (00410)	SULFATE DISSOLVED (mg/L as SO_4) (00945)	CHLORIDE, DISSOLVED (mg/L as Cl) (00940)	FLUORIDE, DISSOLVED (mg/L as F) (00950)	SILICA, DISSOLVED (mg/L as SiO_2) (00955)
		03-29-85	810	150	120	15	548	2,900	57	2.5	13
4	365523094503201	06-05-85	29	2.3	9.1	3.5	70	39	5.3	0.2	8.7
5	365544094513201	06-12-84	350	110	42	3.4	27	1,600	9.8	2.9	15
		03-28-85	260	80	34	3.5	71	1,100	10	1.2	11
		06-04-85	290	83	35	3.7	55	1,400	11	1.1	12
6	365637094511201	06-13-84	370	120	45	3.9	38	1,900	11	2.7	17
		05-31-85	280	72	30	3.5	80	1,200	8.1	1.1	11
		05-14-85	150	52	20	3.3	68	680	5.0	1.1	9.3
		06-02-85	280	72	29	3.2	78	1,200	8.1	1.2	11
		06-09-85	220	64	25	3.6	73	920	8.2	1.1	11
7	365710094504401	06-11-84	340	110	44	3.7	53	1,600	11	3.0	15
		01-09-85	280	80	28	3.6	84	1,200	7.3	0.2	12
		03-27-85	300	97	38	3.7	91	1,500	10	1.4	12
		06-03-85	320	88	36	3.4	90	1,500	8.7	1.3	13
		04-17-85	280	89	34	3.8	83	1,300	9.5	1.3	11
8	365714094504401	03-21-84	450	130	47	4.3	0	2,400	9.4	6.6	26
		06-10-84	420	110	46	3.6	0	2,100	8.0	4.7	27
		01-09-85	510	100	37	3.6	14	2,200	7.5	9.2	25
		03-27-85	490	120	48	3.9	0	2,400	9.4	4.0	23
		05-15-85	E480	110	42	3.4	0	1,900	9.1	4.1	25
		04-17-85	510	130	49	4.1	0	2,300	10	3.8	23
9	365714094504402	06-06-85	480	110	43	3.6	0	2,200	4.6	3.0	23
		06-03-85	490	110	49	4.1	0	2,400	11	3.0	22
		05-15-85	480	110	44	3.6	0	2,000	10	4.2	25
10	365715094504301	06-10-84	430	120	42	3.7	0	2,200	8.0	6.0	26
		05-31-85	520	120	46	4.1	0	2,500	5.2	3.9	23
		06-06-85	490	110	42	3.8	3	2,400	5.2	3.5	22
		05-15-85	480	100	42	3.6	0	2,100	8.7	4.4	24
		04-18-85	560	140	51	4.2	0	2,900	11	4.4	24
11	365716094504601	06-03-85	580	20	11	1.4	148	1,600	0.8	0.9	11
12	365720094503801	03-21-84	450	140	51	4.4	14	2,600	10	7.6	29
		06-06-85	500	110	43	3.8	45	2,400	6.4	4.0	24
		05-15-85	500	120	46	3.8	35	2,200	9.7	5.2	27
13	365720094504001	03-28-85	540	130	50	4.1	0	2,500	9.2	4.4	24
		06-06-85	490	110	42	3.8	15	2,400	7.5	3.8	22

Table 6.--Concentrations of chemical constituents and measurements of physical parmeters--Continued

MAP NUMBER	STATION NUMBER	DATE	CALCIUM DISSOLVED (mg/L as Ca) (00915)	MAGNESIUM, DISSOLVED (mg/L as Mg) (00925)	SODIUM, DISSOLVED (mg/L as Na) (00930)	POTASSIUM, DISSOLVED (mg/L as K) (00935)	ALKALINITY WH WAT TOTAL FIELD mg/L as $CaCO_3$ (00410)	SULFATE DISSOLVED (mg/L as SO_4) (00945)	CHLORIDE, DISSOLVED (mg/L as Cl) (00940)	FLUORIDE, DISSOLVED (mg/L as F) (00950)	SILICA, DISSOLVED (mg/L as SiO_2) (00955)
		05-15-85	490	110	43	3.7	0	2,000	9.4	4.7	25
		04-18-85	560	150	55	4.1	0	2,700	11	4.4	25
14	365723094503501	03-21-84	490	170	55	4.6	91	2,900	11	7.7	28
		06-06-84	520	130	54	3.3	90	2,400	9.3	7.8	29
		03-28-85	560	150	53	4.1	105	2,600	10	4.4	25
		06-06-85	510	120	43	3.9	103	2,500	5.2	5.4	26
		05-15-85	510	110	44	3.8	100	2,200	11	5.6	25
		04-18-85	540	150	54	4.2	110	2,400	11	4.4	25
15	365723094503511	06-06-84	500	120	52	3.7	78	2,400	9.1	7.3	24
		05-15-85	510	120	49	3.9	83	2,300	10	5.5	27
15	365723094503511	04-18-85	520	140	53	4.2	102	2,300	11	4.2	24
16	365723094503512	06-06-84	500	120	53	3.5	83	2,400	9.1	7.1	24
17	365723094503513	06-06-84	510	120	53	3.4	93	2,400	9.0	8.0	25
		04-18-85	550	140	51	4.1	102	2,400	11	4.2	25
18	365723094503514	06-06-84	520	130	53	3.3	E90	2,400	9.1	7.3	24
19	365723094503520	06-10-84	510	130	49	3.5	53	2,300	9.1	7.0	24
		06-06-85	500	110	45	3.9	85	2,500	6.0	3.9	24
		04-18-85	540	140	51	4.2	77	2,400	11	4.2	24
20	365728094502901	03-21-84	510	92	37	3.6	71	2,400	6.9	9.1	37
21	365730094503301	06-08-84	240	40	14	2.9	0	910	1.7	2.2	10
22	365730094503601	11-29-83	500	260	91	10	E10	3,600	21	13	21
		11-29-83	470	130	56	6.9	E10	2,700	9.6	16	28
		11-28-83	570	270	78	6.4	150	3,000	19	7.0	16
		03-19-84	480	120	54	6.9	13	2,800	8.1	15	39
		08-21-85	--	--	--	9.6	155	2,500	14	9.6	--
		08-21-85	480	230	96	10	155	3,500	19		--
		06-21-85	510	86	43	7.2	40	2,200	13	8.4	28
		08-21-85	470	200	73	6.6	170	2,800	21	6.2	17
23	365730094504001	12-01-83	340	180	76	6.0	140	3,200	21	7.2	17
		12-19-83	490	150	51	3.7	145	2,600	17	7.1	5.2
		12-19-83	500	100	73	7.6	5	2,300	14	17	5.4
		02-16-84	480	250	80	6.5	145	3 400	19	7.2	16
		06-13-84	470	240	80	5.2	158	3,000	16	6.1	20
		03-28-85	500	220	75	5.6	164	3,100	16	5.1	18
		01-09-85	480	220	70	5.8	152	3,100	16	5.8	18

Table 6.--Concentrations of chemical constituents and measurements of physical parmeters--Continued

MAP NUMBER	STATION NUMBER	DATE	CALCIUM DISSOLVED (mg/L as Ca) (00915)	MAGNESIUM, DISSOLVED (mg/L as Mg) (00925)	SODIUM, DISSOLVED (mg/L as Na) (00930)	POTASSIUM, DISSOLVED (mg/L as K) (00935)	ALKALINITY WH WAT TOTAL FIELD mg/L as $CaCO_3$ (00410)	SULFATE DISSOLVED (mg/L as SO_4) (00945)	CHLORIDE, DISSOLVED (mg/L as Cl) (00940)	FLUORIDE, DISSOLVED (mg/L as F) (00950)	SILICA, DISSOLVED (mg/L as SiO_2) (00955)
		06-04-85	480	210	71	5.7	160	3,000	28	5.3	17
24	365730094504011	06-13-84	470	230	78	5.2	153	3,000	16	5.9	21
25	365730094504601	05-15-85	410	170	12	1.3	75	1,600	1.7	0.6	7.4
26	365734094503601	01-09-85	270	94	33	4.0	--	1,300	8.4	1.4	11
27	365735094503501	03-27-85	510	240	91	5.7	214	3,100	24	2.9	15
28	365740094502901	06-08-84	480	230	79	5.5	0	3,000	16	7.6	18
29	365744094502901	06-03-85	240	65	26	3.1	115	910	9.6	1.2	11
		04-17-85	250	73	28	3.7	93	990	8.3	1.0	10
30	365744094503200	03-27-85	290	99	38	3.9	101	1,400	11	1.3	11
31	365744094503201	06-08-84	510	260	90	5.2	60	3,000	22	6.0	12
		06-07-85	490	240	89	7.1	240	3,000	25	3.7	15
32	365746094503001	06-03-85	470	220	82	5.8	238	3,000	24	2.6	13
		04-17-85	520	240	91	6.0	230	3,100	24	2.9	15
33	365757094505501	11-29-83	570	280	92	6.4	260	2,900	31	4.1	15
		11-29-83	570	280	93	6.2	260	3,200	33	4.5	16
33	365757094505501	03-22-84	490	250	89	6.5	260	3,200	28	6.1	19
		03-23-84	510	130	51	6.6	235	2,200	17	4.0	27
		06-11-85	510	190	85	5.7	232	2,900	30	2.5	15
34	365800094504501	02-16-84	510	260	96	6.4	240	3,200	31	3.7	15
		03-27-85	550	210	96	5.5	233	2,800	29	2.7	16
		06-03-85	500	180	86	5.4	233	2,700	32	2.4	14
		01-09-85	540	220	92	5.7	288	2,800	30	2.7	15
		04-17-85	560	210	92	5.4	224	2,900	29	2.6	16
35	365800094505001	06-08-84	400	120	36	6.0	88	1,500	5.1	1.5	7.4
36	365807094504301	06-11-84	180	22	9.7	2.0	105	490	2.7	0.3	9.7
		01-09-85	130	13	5.9	2.3	54	320	2.6	1.5	7.4
		03-27-85	140	14	6.2	2.7	68	360	3.4	0.2	7.5
		06-03-85	160	15	7.2	1.9	105	380	3.2	0.3	8.6
		04-17-85	140	13	6.8	2.6	75	300	2.8	0.3	6.6
37	365811094501301	06-11-84	160	19	17	3.4	140	410	9.1	0.3	10
		06-03-85	160	18	14	2.6	110	370	2.2	0.4	10
		05-14-85	63	5.5	4.0	2.4	53	120	10	0.2	8.0
38	365821094504401	05-14-85	39	3.9	2.8	2.5	40	76	0.4	<0.1	7.0
39	365845094505201	11-29-83	500	190	91	5.5	260	2,500	37	3.1	13
		11-29-83	500	190	88	5.7	240	2,500	35	3.1	13

Table 6.--Concentrations of chemical constituents and measurements of physical parmeters--Continued

MAP NUMBER	STATION NUMBER	DATE	CALCIUM DISSOLVED (mg/L as Ca) (00915)	MAGNESIUM, DISSOLVED (mg/L as Mg) (00925)	SODIUM, DISSOLVED (mg/L as Na) (00930)	POTASSIUM, DISSOLVED (mg/L as K) (00935)	ALKALINITY WH WAT TOTAL FIELD mg/L as $CaCO_3$ (00410)	SULFATE DISSOLVED (mg/L as SO_4) (00945)	CHLORIDE, DISSOLVED (mg/L as Cl) (00940)	FLUORIDE, DISSOLVED (mg/L as F) (00950)	SILICA, DISSOLVED (mg/L as SiO_2) (00955)
		03-22-94	490	180	82	5.5	202	2,300	33	4.2	18
		06-11-85	490	130	75	5.0	180	2,300	29	--	--
		06-11-85	510	130	75	5.2	180	2,300	27	2.1	13
40	365926094495501	11-30-83	460	230	67	3.8	280	2,800	10	1.2	8.6
		03-22-94	470	250	73	4.2	288	2,900	9.6	1.7	12
		06-11-85	500	200	69	3.9	276	2,700	9.4	0.7	10
41	365937094511501	11-30-83	690	330	120	10	280	3,000	35	5.4	18
42	365942094504201	11-30-83	160	87	340	5.1	260	1,300	18	0.3	15
		11-30-83	540	440	310	43	1000	2,700	96	0.9	13
		03-23-94	510	360	340	44	870	2,900	85	0.6	14
		06-12-85	540	410	310	45	960	3,000	100	0.7	14
43	365951094464901	12-01-83	560	49	52	5.6	280	1,600	7.0	1.7	11
		12-01-83	640	210	81	9.2	680	2,100	12	2.0	9.6
		12-01-83	500	260	74	12	360	3,500	14	1.6	9.3
		03-22-94	560	45	51	5.7	350	1,600	4.8	1.3	13
		03-22-94	600	190	78	9.4	720	2,200	10	1.9	15
		03-22-84	450	250	72	11	375	3,700	11	1.0	11
		06-12-85	560	36	49	5.5	277	1,600	6.1	1.3	13
		06-12-85	590	180	84	9.9	732	2,300	6.6	1.0	13
		06-12-85	500	210	71	14	367	3,200	13	0.7	10
44	365956094510701	06-12-84	240	12	5.8	1.4	110	580	0.9	0.3	7.7
		06-05-85	76	7.0	3.5	3.2	83	150	3.7	0.2	7.0
		06-09-85	51	3.9	2.4	2.6	55	100	2.5	0.1	7.5
45	370015094460601	06-08-94	460	62	34	7.3	0	1,800	12	1.7	33
46	370103094511301	12-02-83	61	9.5	14	4.7	60	160	3.9	0.4	7.2
47	370103094511701	06-08-94	100	7.4	8.3	2.7	90	220	1.8	0.3	9.2
48	370108094510701	12-02-83	86	7.4	14	3.8	80	200	3.8	0.6	15
49	370153094511101	06-12-84	11	3.5	5.5	3.8	35	16	3.0	0.4	5.8
		06-05-85	14	3.3	4.4	4.3	30	25	7.8	0.2	9.2

Table 6.--Concentrations of chemical constituents and measurements of physical parameters--Continued

MAP NUMBER	STATION NUMBER	DATE	NITROGEN, NITRITE DISSOLVED (mg/L as N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (mg/L as N) (00631)	NITROGEN, AMMONIA DISSOLVED (mg/L as N) (00608)	PHOSPHORUS, DISSOLVED (mg/L as P) (00666)	ALUMINUM, TOTAL RECOVERABLE (µg/L as Al) (01105)	ALUMINUM, DISSOLVED (µg/L as Al) (01106)	ARSENIC DISSOLVED (µg/L as As) (01000)	BARIUM, DISSOLVED (µg/L as Ba) (01005)	BERYLLIUM, DISSOLVED (µg/L as Be) (01013)
1	365255094514301	06-12-84	--	--	--	0.007	--	220	--	--	--
		01-10-85	--	--	0.46	<0.005	1,600	170	--	36	<0.5
		03-28-85	--	--	0.34	<0.01	260	140	--	35	<1
		06-04-85	--	--	0.46	<0.001	--	20	--	38	<0.5
		04-18-85	--	--	0.33	0.015	140	90	<1	31	<1
2	365359094520401	06-11-84	--	--	--	<0.001	--	510	--	--	--
		10-18-84	--	--	--	--	--	10	--	--	--
		01-09-85	--	--	0.44	<0.005	550	330	--	34	<1
		03-27-85	--	--	0.43	<0.01	310	200	3	37	<1
		03-29-85	--	--	0.16	<0.01	6,200	10	--	46	<0.5
		04-24-85	--	--	--	--	420	--	--	--	--
		05-15-85	--	--	--	--	640	--	--	--	--
		08-14-85	--	--	--	--	2,300	--	--	--	--
		10-16-85	--	--	--	--	200	--	--	--	--
		10-18-85	--	--	--	--	5,000	--	--	--	--
		02-13-86	--	--	--	--	200	--	--	--	--
		09-12-85	--	--	--	--	240	--	--	--	--
		04-17-85	--	--	0.34	0.015	130	80	<1	32	<1
		02-16-84	--	--	--	<0.01	--	340	--	--	--
		03-19-84	--	--	--	0.012	--	440	--	--	--
		03-20-84	--	--	--	<0.005	--	260	--	--	--
		08-21-84	--	--	--	--	--	2,200	--	--	--
		05-14-85	--	--	0.22	0.01	1,300	200	--	33	<1
		05-30-85	--	--	0.43	0.001	--	<10	--	60	<0.5
		06-01-85	--	--	--	--	180	--	--	--	--
		06-02-85	--	--	0.78	0.005	2,200	40	--	91	<0.5
		06-03-85	--	--	0.53	0.001	--	30	--	41	<0.5
		06-05-85	--	--	0.49	0.003	630	50	--	33	<0.5
		06-07-85	--	--	0.28	0.003	3,200	170	--	36	<0.5
		06-08-85	--	--	0.29	0.001	760	40	--	36	<0.5
		06-09-85	--	--	0.31	0.001	310	10	--	35	<0.5
		06-12-85	--	--	0.37	0.003	530	10	--	36	<0.5
		08-23-85	--	--	<0.01	0.06	2,000	350	--	--	--
3	365522094521501	06-14-84	--	--	--	0.075	--	930	--	--	--
		06-10-85	--	--	1.30	0.065	--	620	--	21	<1

Table 6.--Concentrations of chemical constituents and measurements of physical parmeters--Continued

MAP NUMBER	STATION NUMBER	DATE	NITROGEN, NITRITE DISSOLVED (mg/L as N) (00613)	NITROGEN, NO2-NO3 DISSOLVED (mg/L as N) (00631)	NITROGEN, AMMONIA DISSOLVED (mg/L as N) (00608)	PHOSPHORUS, DISSOLVED (mg/L as P) (00666)	ALUMINUM, TOTAL RECOVERABLE (µg/L as Al) (01105)	ALUMINUM, DISSOLVED (µg/L as Al) (01106)	ARSENIC DISSOLVED (µg/L as As) (01000)	BARIUM, DISSOLVED (µg/L as Ba) (01005)	BERYLLIUM, DISSOLVED (µg/L as Be) (01010)
		03-29-95	--	--	1.50	0.06	--	710	--	22	<2
4	365523094503201	06-05-95	--	--	0.41	0.048	--	270	--	68	0.5
5	365544094513201	06-12-94	--	--	--	<0.001	--	420	--	--	--
		03-29-95	--	--	0.33	0.02	610	190	--	39	<1
		06-04-95	--	--	0.57	0.001	--	40	--	30	<0.5
6	365637094511201	06-13-94	--	--	--	0.193	--	790	--	--	--
		05-31-95	--	--	0.40	0.003	--	90	--	33	<0.5
		05-14-95	--	--	0.21	0.02	2,200	300	--	34	<1
		06-02-95	--	--	0.29	0.001	710	60	--	31	<0.5
		06-09-95	--	--	0.28	0.003	770	70	--	34	<0.5
7	365710094504401	06-11-94	--	--	--	<0.001	--	780	--	--	--
		01-09-95	--	--	0.41	0.005	1,400	1,200	--	30	<0.5
		03-27-95	--	--	0.31	<0.01	1,400	570	3	29	<1
		06-03-95	--	--	0.40	0.005	--	320	--	33	<1
		04-17-95	--	--	0.30	0.014	940	450	3	27	<1
8	365714094504401	03-21-94	--	--	--	0.005	--	4,700	--	--	--
		06-10-94	--	--	--	<0.001	--	3,700	--	--	--
		01-09-95	--	--	0.61	<0.005	4,200	3,900	--	15	<1
		03-27-95	--	--	0.28	<0.01	3,500	3,300	6	6	<1
		05-15-95	--	--	0.47	0.01	--	2,600	--	22	<1
		04-17-95	--	--	0.26	0.016	2,900	3,000	3	5	<1
9	365714094504402	06-06-95	--	--	0.61	0.008	--	2,000	--	10	<1
		06-03-95	--	--	0.99	0.005	--	2,000	--	17	<1
		05-15-95	--	--	0.51	0.01	--	2,600	--	10	<1
10	365715094504301	06-10-94	--	--	--	0.003	--	4,000	--	--	--
		05-31-95	--	--	0.76	0.006	--	2,100	--	10	<1
		06-06-95	--	--	0.59	0.006	--	2,100	--	10	<1
		05-15-95	--	--	0.48	0.01	--	2,600	--	9	<1
		04-19-95	--	--	0.30	0.022	--	2,900	1	10	<1
11	365716094504601	06-03-95	--	--	0.32	<0.001	--	10	--	21	<1
12	365720094503801	03-21-94	--	--	--	0.009	--	5,300	--	--	--
		06-06-95	--	--	0.61	0.008	--	2,600	--	15	<1
		05-15-95	--	--	0.63	0.01	--	3,000	--	5	<1
13	365720094504001	03-29-95	--	--	0.22	<0.01	--	3,300	9	5	<1
		06-06-95	--	--	0.65	0.006	--	2,200	--	18	<1

Table 6.--Concentrations of chemical constituents and measurements of physical parmeters--Continued

MAP NUMBER	STATION NUMBER	DATE	NITROGEN, NITRITE DISSOLVED (mg/L as N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (mg/L as N) (00631)	NITROGEN, AMMONIA DISSOLVED (mg/L as N) (00608)	PHOSPHORUS, DISSOLVED (mg/L as P) (00666)	ALUMINUM, TOTAL RECOVERABLE (µg/L as Al) (01105)	ALUMINUM, DISSOLVED (µg/L as Al) (01106)	ARSENIC DISSOLVED (µg/L as As) (01000)	BARIUM, DISSOLVED (µg/L as Ba) (01005)	BERYLLIUM, DISSOLVED (µg/L as Be) (01010)
		05-15-85	--	--	0.52	0.01	--	2,800	--	9	<1
		04-18-85	--	--	0.31	0.019	--	2,700	2	9	<1
14	365723094503501	03-21-84	--	--	--	0.193	--	5,200	--	--	--
		06-06-84	--	--	--	0.137	--	4,800	--	--	--
		03-28-85	--	--	0.68	0.05	--	3,400	16	2	<1
		06-06-85	--	--	0.76	0.191	--	2,900	--	4	<1
		05-15-85	--	--	0.71	0.02	--	2,900	--	<3	<1
		04-18-85	--	--	0.69	0.13	--	2,700	16	7	<1
15	365723094503511	06-06-84	--	--	--	<0.001	--	5,000	--	--	--
		05-15-85	--	--	0.74	0.01	--	2,900	--	<4	<1
15	365723094503511	04-18-85	--	--	0.75	0.022	--	2,700	--	7	<1
16	365723094503512	06-06-84	--	--	--	<0.001	--	5,000	--	--	--
17	365723094503513	06-06-84	--	--	--	0.014	--	5,000	--	--	--
		04-18-85	--	--	0.63	0.047	--	3,000	--	8	<1
18	365723094503514	06-06-84	--	--	--	0.014	--	4,900	--	--	--
19	365723094503520	06-10-84	--	--	--	<0.001	--	--	--	--	--
		06-06-85	--	--	0.72	0.022	--	2,800	--	5	<1
		04-18-85	--	--	0.67	0.02	--	2,800	--	8	<1
20	365728094502901	03-21-84	--	--	--	0.067	--	7,900	--	--	--
21	365730094503301	06-08-84	--	--	--	0.003	--	2,600	--	--	--
22	365730094503801	11-28-83	<0.01	<0.10	0.78	<0.01	--	7,700	--	--	--
		11-28-83	<0.01	<0.10	0.60	0.18	--	19,000	--	--	--
		11-28-83	<0.01	<0.10	0.66	<0.01	--	6,300	--	--	--
		03-19-84	--	--	--	>1.00	--	16,000	--	--	--
		08-21-85	--	--	<0.01	<0.01	--	7,200	--	--	--
		08-21-85	--	--	--	--	--	4,500	--	8	<10
		08-21-85	--	--	<0.01	0.50	--	5,800	--	11	2
		08-21-85	--	--	<0.01	<0.01	--	3,400	--	9	2
23	365730094504001	12-01-83	0.01	<0.10	0.35	<0.01	--	5,600	--	--	--
		12-19-83	--	--	--	--	--	3,800	--	--	--
		12-19-83	--	--	--	--	--	15,000	--	--	--
		02-16-84	--	--	--	0.067	--	6,500	--	--	--
		06-13-84	--	--	--	0.199	--	6,000	--	--	--
		03-28-85	--	--	0.98	0.06	--	4,800	14	5	<1
		01-09-85	--	--	0.88	0.061	5,500	5,400	--	12	3

Table 6.--Concentrations of chemical constituents and measurements of physical parmeters--Continued

MAP NUMBER	STATION NUMBER	DATE	NITROGEN, NITRITE DISSOLVED (mg/L as N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (mg/L as N) (00631)	NITROGEN, AMMONIA DISSOLVED (mg/L as N) (00608)	PHOSPHORUS, DISSOLVED (mg/L as P) (00666)	ALUMINUM, TOTAL RECOVERABLE (µg/L as Al) (01105)	ALUMINUM, DISSOLVED (µg/L as Al) (01106)	ARSENIC DISSOLVED (µg/L as As) (01000)	BARIUM, DISSOLVED (µg/L as Ba) (01005)	BERYLLIUM, DISSOLVED (µg/L as Be) (01010)
		06-04-85	--	--	0.88	0.076	--	4,200	--	7	<1
24	365730094[illegible]011	06-13-84	--	--	--	0.018	--	5,900	--	--	--
25	365730094504601	05-15-85	--	--	0.19	<0.01	--	<100	--	18	<1
26	365734094503601	01-09-85	--	--	0.46	<0.005	1,200	970	--	29	<1
27	365735094503501	03-27-85	--	--	0.85	<0.01	2,400	1,900	--	8	<1
28	365740094502901	06-08-84	--	--	--	0.002	--	5,800	--	--	--
29	365744094502801	06-03-85	--	--	0.26	0.004	--	60	--	33	<0.5
		04-17-85	--	--	0.21	0.013	730	100	2	35	<1
30	365744094503200	03-27-85	--	--	0.27	<0.01	880	470	--	29	<1
31	365744094503201	06-08-84	--	--	--	<0.001	--	870	--	--	--
		06-07-85	--	--	0.94	0.028	--	2,500	--	13	<1
32	365746094503001	06-03-85	--	--	0.94	0.012	--	1,900	--	10	<1
		04-17-85	--	--	0.77	0.023	--	2,000	20	6	<1
33	365757094505501	11-29-83	<0.01	<0.10	0.59	<0.01	--	2,900	--	--	--
		11-29-83	<0.01	<0.10	0.53	<0.01	--	2,900	--	--	--
33	365757094505501	03-23-84	--	--	--	0.125	--	1,400	--	--	--
		03-23-84	--	--	--	0.79	--	,260	--	--	--
		06-11-85	--	--	0.89	0.08	--	1 600	--	9	<1
34	365800094504501	02-16-84	--	--	--	0.165	--	2,000	--	--	--
		03-27-85	--	--	0.69	--	--	1,700	--	7	<1
		06-03-85	--	--	0.92	0.01	--	1,500	--	10	<1
		01-09-85	--	--	0.88	0.171	1,700	1,900	--	13	<1
		04-17-85	--	--	0.73	0.148	1,700	1,800	25	7	<1
35	365800094505001	06-06-84	--	--	--	0.003	--	<10	--	--	--
36	365807094504301	06-11-84	--	--	--	0.016	--	<10	--	--	--
		01-09-85	--	--	0.11	0.02	310	<10	--	41	<1
		03-27-85	--	--	0.15	<0.01	--	20	--	49	<0.5
		06-03-85	--	--	0.20	0.005	--	<10	--	57	<0.5
		04-17-85	--	--	0.07	0.03	--	10	--	48	<0.5
37	365811094501301	06-11-84	--	--	--	0.216	--	10	--	--	--
		06-03-85	--	--	0.19	0.036	--	30	--	40	<0.5
		05-14-85	--	--	0.13	0.04	1,500	<100	--	37	<0.5
38	365821094504401	05-14-85	--	--	0.08	0.03	1,700	100	--	38	<0.5
39	365845094505201	11-29-83	<0.01	<0.10	0.59	<0.01	--	1,900	--	--	--
		11-29-83	<0.01	<0.10	0.53	<0.01	--	1,700	--	--	--

Table 6.--Concentrations of chemical constituents and measurements of physical parmeters--Continued

MAP NUMBER	STATION NUMBER	DATE	NITROGEN, NITRITE DISSOLVED (mg/L as N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (mg/L as N) (00631)	NITROGEN, AMMONIA DISSOLVED (mg/L as N) (00608)	PHOSPHORUS, DISSOLVED (mg/L as P) (00666)	ALUMINUM, TOTAL RECOVERABLE (µg/L as Al) (01105)	ALUMINUM, DISSOLVED (µg/L as Al) (01106)	ARSENIC DISSOLVED (µg/L as As) (01000)	BARIUM, DISSOLVED (µg/L as Ba) (01005)	BERYLLIUM, DISSOLVED (µg/L as Be) (01010)
		06-11-85	--	--	--	--	--	--	--	7	<0.5
		06-11-85	--	--	0.73	0.00	--	750	--	10	<1
40	365926094485501	11-30-83	<0.01	<0.10	0.41	<0.01	--	690	--	--	--
		03-22-84	--	--	--	0.022	--	500	--	--	--
		06-11-85	--	--	0.68	0.029	--	450	--	12	<1
41	365937094511501	11-30-83	<0.01	<0.10	0.90	<0.01	--	3,400	--	--	--
42	365942094504201	11-30-83	<0.01	<0.10	0.14	<0.01	--	20	--	--	--
		11-30-83	<0.01	<0.10	0.85	<0.01	--	10	--	--	--
		03-23-84	--	--	--	<0.005	--	30	--	--	--
		06-12-85	--	--	1.30	0.007	--	<10	--	18	<1
43	365951094464901	12-01-83	<0.01	<0.10	0.31	0.02	--	70	--	--	--
		12-01-83	<0.01	<0.10	0.95	<0.01	--	310	--	--	--
		12-01-83	<0.01	<0.10	1.00	<0.01	--	1,700	--	--	--
		03-22-84	--	--	--	<0.005	--	60	--	--	--
		03-22-84	--	--	--	0.006	--	350	--	--	--
		03-22-84	--	--	--	0.014	--	540	--	--	--
		06-12-85	--	--	0.55	0.005	--	30	--	14	<1
		06-12-85	--	--	1.20	0.014	--	270	--	21	1
		06-12-85	--	--	1.50	0.025	--	610	--	10	<1
44	365956094510701	06-12-84	--	--	--	<0.001	--	10	--	--	--
		06-05-85	--	--	0.06	0.012	--	<10	--	75	<0.5
		06-09-85	--	--	0.07	0.008	--	110	--	42	<0.5
45	370015094460601	06-08-84	--	--	--	0.012	--	6,000	--	--	--
46	370103094511301	12-02-83	<0.01	0.11	0.09	<0.01	--	100	--	--	--
47	370103094511701	06-08-84	--	--	--	<0.001	--	10	--	--	--
48	370108094510701	12-02-83	<0.01	0.13	0.13	<0.01	--	<10	--	--	--
49	370153094511101	06-12-84	--	--	--	0.014	--	70	--	--	--
		06-05-85	--	--	0.13	0.033	--	20	--	60	<0.5

Table 6.--Concentrations of chemical constituents and measurements of physical parameters--Continued

MAP NUMBER	STATION NUMBER	DATE	CADMIUM, TOTAL RECOVERABLE (µg/L as Cd) (01027)	CADMIUM, DISSOLVED (µg/L as Cd) (01025)	COBALT, TOTAL RECOVERABLE (µg/L as Co) (01037)	COBALT, DISSOLVED (µg/L as Co) (01035)	COPPER, TOTAL RECOVERABLE (µg/L as Cu) (01042)	COPPER, DISSOLVED (µg/L as Cu) (01040)	IRON, TOTAL RECOVERABLE (µg/L as Fe) (01045)	IRON, DISSOLVED (µg/L as Fe) (01046)	LEAD, TOTAL RECOVERABLE (µg/L as Pb) (01051)	LEAD, DISSOLVED (µg/L as Pb) (01049)
1	365255094514301	06-12-84	--	35	--	--	--	1	--	--	--	<1
		01-10-85	13	37	100	--	6	--	51,000	41,000	24	11
		03-28-85	11	30	150	130	2	<20	43,000	41,000	<1	<20
		06-04-85	--	13	--	90	--	<10	--	5,300	--	<1
		04-18-85	3	25	--	120	2	1	26,000	25,000	2	<20
2	365359094520401	06-11-84	--	2	--	--	--	2	--	27,000	--	<1
		10-18-84	20	15	--	--	4	<1	1,700	--	<1	<1
		01-09-85	9	43	150	--	1	--	58,000	55,000	3	<20
		03-27-85	23	30	150	140	<1	<20	59,000	53,000	<1	<20
		03-29-85	2	7	<50	20	10	<10	24,000	7,600	58	<10
		04-24-85	30	--	150	--	20	--	42,000	--	<0	--
		05-15-85	20	--	100	--	20	--	41,000	--	11	--
		08-14-85	40	--	100	--	20	--	5,000	--	--	--
		10-16-85	2	--	50	--	1	--	14,000	--	5	--
		10-18-85	16	--	100	--	18	--	43,000	--	110	--
		02-13-86	21	--	100	--	8	--	45,000	--	2	--
		09-12-85	4	--	150	--	1	--	14,000	--	3	--
		04-17-85	13	27	--	100	2	<20	33,000	33,000	3	<20
		02-16-84	3	36	--	--	2	6	55,000	53,000	<1	<1
		03-19-84	5	24	--	--	11	2	65,000	59,000	110	<1
		03-20-84	4	28	--	--	3	<1	48,000	50,000	21	<1
		08-21-84	8	9	--	--	22	11	23,000	23,000	140	160
		05-14-85	10	12	100	80	20	<20	43,000	50,000	100	<20
		05-30-85	--	16	--	50	--	<10	--	12,000	--	<1
		06-01-85	30	--	100	--	20	--	14,000	--	<0	--
		06-02-85	30	15	100	60	30	<10	19,000	17,000	3	<1
		06-03-85	--	16	--	90	--	<10	--	12,000	--	<1
		06-05-85	30	18	100	100	20	<10	29,000	27,000	1	<1
		06-07-85	30	14	100	80	20	<10	64,000	49,000	74	<1
		06-08-85	30	14	100	80	20	<10	40,000	34,000	15	<1
		06-09-85	20	15	100	90	20	<10	26,000	24,000	1	<1
		06-12-85	30	12	100	70	20	<10	29,000	26,000	5	<1
		08-23-85	30	--	100	--	<10	--	6,000	--	--	35
3	365522094521501	06-14-84	--	1	--	--	--	<1	--	410,000	--	<1
		06-10-85	--	4	--	240	--	20	--	390,000	--	<1

Table 6.--Concentrations of chemical constituents and measurements of physical parmeters--Continued

MAP NUMBER	STATION NUMBER	DATE	CADMIUM, TOTAL RECOVERABLE (µg/L as Cd) (01027)	CADMIUM, DISSOLVED (µg/L as Cd) (01025)	COBALT, TOTAL RECOVERABLE (µg/L as Co) (01037)	COBALT, DISSOLVED (µg/L as Co) (01035)	COPPER, TOTAL RECOVERABLE (µg/L as Cu) (01042)	COPPER, DISSOLVED (µg/L as Cu) (01040)	IRON, TOTAL RECOVERABLE (µg/L as Fe) (01045)	IRON, DISSOLVED (µg/L as Fe) (01046)	LEAD, TOTAL RECOVERABLE (µg/L as Pb) (01051)	LEAD, DISSOLVED (µg/L as Pb) (01049)
		03-29-85	--	12	--	380	--	<30	--	410,000	--	51
4	365523094503201	06-05-85	--	<1	--	<50	--	<10	--	180	--	1
5	365544094513201	06-12-84	--	2	--	--	--	1	--	52,000	--	<1
		03-28-85	19	30	150	110	3	<20	66,000	64,000	23	<20
		06-04-85	--	15	--	140	--	<10	--	51,000	--	<1
		05-31-85	--	17	--	110	--	<10	--	53,000	--	<1
		05-14-85	10	13	100	70	20	<20	48,000	52,000	100	<20
		06-02-85	40	18	150	110	90	<10	74,000	51,000	35	<1
		06-09-85	20	14	100	100	20	<10	47,000	49,000	38	<1
7	365710094504401	06-11-84	--	2	--	--	--	2	--	64,000	--	<1
		01-09-85	18	49	150	--	4	--	90,000	83,000	28	51
		03-27-85	24		150	170	9	<20	110,000	90,000	77	<20
		06-03-85	--	19	--	140	--	<20	--	78,000	--	<1
		04-17-85	7	28	--	120	--	10	82,000	84,000	41	<20
8	365714094504401	03-21-84	--	12	--	--	--	6	--	150,000	--	100
		06-10-84	--	2	--	--	--	8	--	54,000	--	140
		01-09-85	17	92	--	350	3	--	170,000	160,000	62	50
		03-27-85	110	74	350	330	10	<20	140,000	120,000	110	90
		05-15-85	--	41	--	280	--	<20	--	120,000	--	55
		04-17-85	13	45	--	290	--	14	--	160,000	53	46
9	365714094504402	06-06-85	--	40	--	300	--	<20	--	140,000	--	42
		06-03-85	--	26	--	290	--	190	--	130,000	--	45
		05-15-85	--	41	--	290	--	<20	--	130,000	--	64
10	365715094504301	06-10-84	--	1	--	--	--	9	--	49,000	--	83
		05-31-85	--	24	--	310	--	51	--	150,000	--	31
		06-06-85	--	42	--	290	--	<20	--	160,000	--	11
		05-15-85	--	38	--	290	--	<20	--	130,000	--	57
		04-18-85	--	38	--	450	--	15	--	--	--	49
11	365716094504601	06-03-85	--	8	--	<50	--	<20	--	260	--	2
12	365720094503801	03-21-84	--	54	--	--	--	2	--	200,000	--	35
		06-06-85	--	47	--	280	--	64	--	170,000	--	10
		05-15-85	--	44	--	340	--	<20	--	180,000	--	<20
13	365720094504001	03-29-85	--	67	--	360	--	<20	--	140,000	--	86
		06-06-85	--	42	--	280	--	220	--	170,000	--	4

Table 6.--Concentrations of chemical constituents and measurements of physical parameters--Continued

MAP NUMBER	STATION NUMBER	DATE	CADMIUM, TOTAL RECOVERABLE (µg/L as Cd) (01027)	CADMIUM, DISSOLVED (µg/L as Cd) (01025)	COBALT, TOTAL RECOVERABLE (µg/L as Co) (01037)	COBALT, DISSOLVED (µg/L as Co) (01035)	COPPER, TOTAL RECOVERABLE (µg/L as Cu) (01042)	COPPER, DISSOLVED (µg/L as Cu) (01040)	IRON, TOTAL RECOVERABLE (µg/L as Fe) (01045)	IRON, DISSOLVED (µg/L as Fe) (01046)	LEAD, TOTAL RECOVERABLE (µg/L as Pb) (01051)	LEAD, DISSOLVED (µg/L as Pb) (01049)
		05-15-85	--	41	--	300	--	<20	--	140,000	--	54
		04-18-85	--	38	--	450	--	20	--	--	--	38
14	365723094503501	03-21-84	--	20	--	--	--	<1	--	290,000	--	32
		06-06-84	--	23	--	--	--	<1	--	240,000	--	36
		03-29-85	--	35	--	440	--	<20	--	260,000	--	23
		06-06-85	--	25	--	370	--	<20	--	230,000	--	19
		05-15-85	--	29	--	340	--	<20	--	220,000	--	26
		04-18-85	--	32	--	500	--	16	--	--	--	<20
15	365723094503511	06-06-84	--	10	--	--	--	<1	--	200,000	--	7
		05-15-85	--	29	--	370	--	<20	--	220,000	--	20
15	365723094503511	04-18-85	--	32	--	370	--	16	--	--	--	27
16	365723094503512	06-06-84	--	29	--	--	--	<1	--	210,000	--	13
17	365723094503513	06-06-84	--	35	--	--	--	<1	--	200,000	--	26
		04-18-85	--	32	--	520	--	15	--	--	--	<20
18	365723094503514	06-06-84	--	12	--	--	--	<1	--	200,000	--	33
19	365723094503520	06-10-84	--	9	--	--	--	7	--	170,000	--	<1
		06-06-85	--	23	--	310	--	<20	--	210,000	--	5
		04-18-85	--	32	--	380	--	19	--	--	--	35
20	365728094502901	03-21-84	--	51	--	--	--	<1	--	240,000	--	49
21	365730094503301	06-08-84	--	39	--	--	--	2	--	--	--	36
22	365730094503801	11-28-83	--	20	--	--	--	4	--	390,000	--	45
		11-28-83	--	25	--	--	--	10	--	260,000	--	65
		11-28-83	--	15	--	--	--	2	--	300,000	--	53
		03-19-84	--	78	--	--	--	<1	--	300,000	--	79
		08-21-85	--	--	--	--	--	--	--	--	--	11
		08-21-85	--	54	--	2400	--	4	--	400,000	--	9
		08-21-85	--	16	--	530	--	24	--	220,000	--	12
		08-21-85	--	24	--	660	--	27	--	270,000	--	5
23	365730094504001	12-01-83	--	15	--	--	--	<1	--	310,000	--	60
		12-19-83	--	13	--	--	--	<1	--	240,000	--	35
		12-19-83	--	80	--	--	--	<1	--	320,000	--	68
		02-16-84	--	34	--	--	--	3	--	330,000	--	81
		06-13-84	--	24	--	--	--	<1	--	270,000	--	76
		03-29-85	--	59	--	500	--	<20	--	290,000	--	64
		01-09-85	60	93	550	500	<1	--	320,000	300,000	80	130

Table 6.--Concentrations of chemical constituents and measurements of physical parmeters--Continued

MAP NUMBER	STATION NUMBER	DATE	CADMIUM, TOTAL RECOVERABLE (µg/L as Cd) (01027)	CADMIUM, DISSOLVED (µg/L as Cd) (01025)	COBALT, TOTAL RECOVERABLE (µg/L as Co) (01037)	COBALT, DISSOLVED (µg/L as Co) (01035)	COPPER, TOTAL RECOVERABLE (µg/L as Cu) (01042)	COPPER, DISSOLVED (µg/L as Cu) (01040)	IRON, TOTAL RECOVERABLE (µg/L as Fe) (01045)	IRON, DISSOLVED (µg/L as Fe) (01046)	LEAD, TOTAL RECOVERABLE (µg/L as Pb) (01051)	LEAD, DISSOLVED (µg/L as Pb) (01049)
		06-04-85	--	42	--	410	--	<20	--	250,000	--	45
24	365730094504011	06-13-84	--	41	--	--	--	<1	--	290,000	--	38
25	365730094504601	05-15-85	--	270	--	<50	--	<20	--	86	--	13
26	365734094503601	01-09-85	8	38	200	<50	1	--	95,000	95,000	17	25
27	365735094503501	03-27-85	12	29	400	470	3	<20	300,000	260,000	74	36
28	365740094502901	06-06-84	--	3	--	--	--	2	--	140,000	--	62
29	365744094502901	06-03-85	--	6	--	90	--	<10	--	47,000	--	<1
		04-17-85	4	9	--	110	6	<20	57,000	31,000	95	<20
30	365744094503200	03-27-85	14	14	200	160	6	<20	97,000	90,000	63	<20
31	365744094503201	06-06-84	--	6	--	--	--	<1	--	190,000	--	<1
		06-07-85	--	21	--	440	--	96	--	290,000	--	18
32	365746094503001	06-03-85	--	18	--	360	--	30	--	250,000	--	6
		04-17-85	--	23	--	430	--	<20	--	270,000	--	24
33	365757094505501	11-29-83	--	25	--	--	--	<1	--	300,000	--	9
		11-29-83	--	22	--	--	--	<1	--	300,000	--	40
33	365757094505501	03-23-84	--	14	--	--	--	<1	--	280,000	--	28
		03-23-84	--	2	--	--	--	<1	--	190,000	--	<1
		06-11-85	--	9	--	320	--	<20	--	220,000	--	7
34	365800094504501	02-16-84	--	38	--	--	--	3	--	280,000	--	58
		03-27-85	--	12	--	350	--	<20	--	230,000	--	25
		06-03-85	--	9	--	260	--	33	--	210,000	--	2
		01-09-85	1	31	450	350	<1	--	270,000	240,000	42	100
		04-17-85	6	12	--	270	<1	<20	--	230,000	18	<20
35	365800094505001	06-08-84	--	17	--	--	--	1	--	60	--	7
36	365807094504301	06-11-84	--	9	--	--	--	3	--	25	--	<1
		01-09-85	12	42	50	<50	3	<20	320	29	11	<20
		03-27-85	--	30	--	<50	--	<10	--	120	--	<10
		06-03-85	--	14	--	<50	--	<10	--	37	--	<1
		04-17-85	--	29	--	<50	--	<10	--	100	--	<10
37	365811094501301	06-11-84	--	<1	--	--	--	2	--	11	--	<1
		06-03-85	--	<1	--	<50	--	<10	--	380	--	2
		05-14-85	<10	<1	<50	<50	10	<10	5,100	140	100	<10
38	365821094504401	05-14-85	<10	12	<50	<50	40	<10	1,800	160	100	<10
39	365845094505201	11-29-83	--	12	--	--	--	2	--	210,000	--	<1
		11-29-83	--	10	--	--	--	<1	--	200,000	--	24

Table 6.--Concentrations of chemical constituents and measurements of physical parmeters--Continued

MAP NUMBER	STATION NUMBER	DATE	CADMIUM TOTAL RECOVERABLE (µg/L as Cd) (01027)	CADMIUM DISSOLVED (µg/L as Cd) (01025)	COBALT, TOTAL RECOVERABLE (µg/L as Co) (01037)	COBALT, DISSOLVED (µg/L as Co) (01035)	COPPER, TOTAL RECOVERABLE (µg/L as Cu) (01042)	COPPER, DISSOLVED (µg/L as Cu) (01040)	IRON, TOTAL RECOVERABLE (µg/L as FE) (01045)	IRON, DISSOLVED (µg/L as FE) (01046)	LEAD, TOTAL RECOVERABLE (µg/L as PB) (01051)	LEAD, DISSOLVED (µg/L as PB) (01049)
		03-22-84	--	6	--	--	--	2	--	00,000	--	21
		06-11-85	--	3	--	<50	--	<1	--	140,000	--	8
		06-11-85	--	3	--	170	--	20	--	150,000	--	10
40	365926094485501	11-30-83	--	10	--	--	--	2	--	270,000	--	22
		03-22-84	--	14	--	--	--	<1	--	290,000	--	49
		06-11-85	--	27	--	320	--	33	--	--	--	39
41	365937094511501	11-30-83	--	4	--	--	--	1	--	390,000	--	<1
42	365942094504201	11-30-83	--	2	--	--	--	2	--	650	--	<1
		11-30-83	--	1	--	--	--	2	--	18,000	--	<1
		03-23-84	--	<1	--	--	--	<1	--	12,000	--	1
		06-12-85	--	<2	--	200	--	56	--	20,000	--	1
43	365951094464901	12-01-83	--	9	--	--	--	1	--	42,000	--	<1
		12-01-83	--	3	--	--	--	<1	--	180,000	--	<1
		12-01-83	--	29	--	--	--	1	--	600,000	--	22
		03-22-84	--	5	--	--	--	<1	--	43,000	--	<1
		03-22-84	--	2	--	--	--	<1	--	150,000	--	<1
		03-22-84	--	18	--	--	--	2	--	590,000	--	34
		06-12-85	--	8	--	70	--	20	--	23,000	--	1
		06-12-85	--	3	--	250	--	38	--	200,000	--	2
		06-12-85	--	28	--	560	--	62	--	590,000	--	24
		06-05-85	--	4	--	<50	--	<10	--	460	--	15
		06-09-85	--	8	--	<50	--	<10	--	250	--	15
45	370015094460601	06-08-84	--	3	--	--	--	24	--	17,000	--	190
46	370103094511301	12-02-83	--	3	--	--	--	3	--	3,000	--	<1
47	370103094511701	06-08-84	--	1	--	--	--	1	--	11	--	<1
48	370108094510701	12-02-83	--	<1	--	--	--	5	--	12	--	5
49	370153094511101	06-12-84	--	<1	--	--	--	2	--	280	--	<1
		06-05-85	--	<1	--	<50	--	<10	--	670	--	1

Table 6.--Concentrations of chemical constituents and measurements of physical parameters--Continued

MAP NUMBER	STATION NUMBER	DATE	LITHIUM DISSOLVED (µg/L as Li) (01130)	MANGANESE, TOTAL RECOVERABLE (µg/L as Mn) (01055)	MANGANESE, DISSOLVED (µg/L as Mn) (01056)	MOLYBDENUM, DISSOLVED (µg/L as Mo) (01060)	NICKEL, TOTAL RECOVERABLE (µg/L as Ni) (01067)	NICKEL, DISSOLVED (µg/L as Ni) (01065)	SELENIUM, DISSOLVED (µg/L as Se) (01145)	STRONTIUM, DISSOLVED (µg/L as Sr) (01080)	VANADIUM, DISSOLVED (µg/L as V) (01085)	ZINC, TOTAL RECOVERABLE (µg/L as Zn) (01092)	ZINC, DISSOLVED (µg/L as Zn) (01090)
1	365255094514301	06-12-84	--	--	2,300	--	--	620	--	--	--	--	45,000
		01-10-85	46	1,200	1,200	<10	620	580	--	230	<6	39,000	37,000
		03-25-85	78	2,000	1,800	<10	850	970	--	420	<12	54,000	52,000
		06-04-85	60	--	1,600	<10	--	600	--	370	<6	--	29,000
		08-15-85	75	1,800	1,900	<20	1,400	800	<1	390	<12	40,000	46,000
2	365359094520401	06-11-84	--	--	2,800	--	--	740	--	--	--	--	62,000
		10-18-84	--	690	710	--	75	78	--	--	--	6,100	--
		01-09-85	62	1,500	1,500	<20	830	710	--	330	<12	48,000	49,000
		03-27-85	87	2,300	5,700	<20	1,300	950	--	440	<12	56,000	53,000
		05-29-85	12	420	350	<10	87	120	--	95	<6	8,700	7,900
		04-24-85	--	2,600	--	--	500	--	--	--	--	51,000	--
		05-15-85	--	1,200	--	--	300	--	--	--	--	25,000	--
		08-14-85	--	1,200	--	--	500	--	--	--	--	18,000	--
		10-16-85	--	790	--	--	400	--	--	--	--	1,800	--
		10-18-85	--	670	--	--	300	--	--	--	--	17,000	--
		02-13-86	--	1,600	--	--	700	--	--	--	--	32,000	--
		09-12-85	--	3,000	--	--	1,400	--	--	--	--	62,000	--
		04-17-85	75	1,900	1,900	<20	1,300	--	<1	380	<12	45,000	46,000
		07-16-86	--	2,100	1,900	--	260	370	--	--	--	56,000	59,000
		03-19-86	--	1,100	930	--	1,700	--	--	--	--	38,000	41,000
		03-20-86	--	990	590	--	800	--	--	--	--	33,000	38,000
		08-21-86	--	3,500	3,600	--	850	1,000	--	--	--	50,000	42,000
		05-14-85	42	900	760	<20	300	--	--	200	<12	27,000	31,000
		05-30-85	34	--	1,000	<10	--	300	--	230	<6	--	18,000
		06-01-85	--	1,900	--	--	300	--	--	--	--	31,000	--
		06-02-85	46	1,600	1,400	<10	500	500	--	270	<6	26,000	26,000
		06-03-85	61	--	1,600	<10	--	700	--	370	<6	--	31,000
		06-05-85	62	2,000	1,600	<10	900	800	--	330	<6	35,000	36,000
		06-07-85	43	1,200	850	<10	600	700	--	200	<6	31,000	30,000
		06-09-85	43	1,200	950	<10	600	600	--	240	<6	29,000	28,000
		06-09-85	54	1,500	1,400	<10	700	700	--	300	<6	29,000	32,000
		06-12-85	44	1,300	1,200	<10	600	600	--	290	<6	23,000	26,000
		08-23-85	--	970	--	--	600	500	--	--	--	21,000	--
3	365522094521501	06-14-84	--	--	3,300	--	--	1,000	--	--	--	--	58,000
		06-10-85	280	--	4,100	<20	--	1,300	--	1,700	<12	--	39,000

Table 5.--Concentrations of chemical constituents and measurements of physical parameters--Continued

MAP NUMBER	STATION NUMBER	DATE	LITHIUM DISSOLVED (µg/L as Li) (01130)	MANGANESE, TOTAL RECOVERABLE (µg/L as Mn) (01055)	MANGANESE, DISSOLVED (µg/L as Mn) (01056)	MOLYBDENUM, DISSOLVED (µg/L as Mo) (01060)	NICKEL, TOTAL RECOVERABLE (µg/L as Ni) (01067)	NICKEL, DISSOLVED (µg/L as Ni) (01065)	SELENIUM, DISSOLVED (µg/L as Se) (01145)	STRONTIUM, DISSOLVED (µg/L as Sr) (01080)	VANADIUM, DISSOLVED (µg/L as V) (01085)	ZINC, TOTAL RECOVERABLE (µg/L as Zn) (01092)	ZINC, DISSOLVED (µg/L as Zn) (01090)
		03-29-95	310	--	1,900	<30	--	1,300	--	1,900	<18	--	43,000
4	365523094503201	06-05-95	<4	--	140	<10	--	<100	--	71	<6	--	50
5	365544094513201	06-12-94	--	--	3,300	--	--	970	--	--	--	--	80,000
		03-29-95	70	1,700	1,500	<20	1,000	900	--	370	<12	50,000	50,000
		06-04-95	73	--	2,200	<10	--	1,000	--	390	<6	--	47,000
6	365637094511201	06-13-94	--	--	3,200	--	--	1,100	--	--	--	--	97,000
		05-31-95	62	--	1,600	<10	--	800	--	370	<6	--	40,000
		05-14-95	43	1,000	800	<20	300	--	--	220	<12	30,000	32,000
		06-02-95	63	1,900	1,600	<10	800	900	--	370	<6	39,000	39,000
		06-09-95	54	1,600	1,600	<10	700	800	--	300	<6	32,000	36,000
7	365710094504401	06-11-94	--	--	3,200	--	--	1,000	--	--	--	--	56,000
		01-09-95	67	1,700	1,700	<10	990	970	--	330	11	65,000	62,000
		03-27-95	85	2,200	1,700	<20	1,400	1,100	--	410	<12	67,000	61,000
		06-03-95	75	--	1,500	<20	--	1,000	--	390	<12	--	53,000
		04-17-95	84	2,100	2,200	<20	2,700	1,100	<1	370	<12	56,000	59,000
8	365714094504401	03-21-94	--	--	4,600	--	--	--	--	--	--	--	140,000
		06-10-94	--	--	5,200	--	--	1,200	--	--	--	--	100,000
		01-09-95	150	3,300	3,500	<20	2,300	2,000	--	230	22	100,000	110,000
		03-27-95	150	4,100	3,400	<20	2,200	2,200	--	310	<12	120,000	100,000
		05-15-95	130	--	E3,600	<20	--	1,700	--	270	<12	--	E110,000
		04-17-95	150	4,100	4,100	<20	2,300	2,200	<1	320	<12	110,000	110,000
9	365714094504402	06-06-95	130	--	3,900	<20	--	1,900	--	290	<12	--	100,000
		06-03-95	130	--	3,100	<20	--	1,600	--	290	<12	--	81,000
		05-15-95	140	--	3,600	<20	--	1,700	--	270	<12	--	110,000
10	365715094504301	06-10-94	--	--	3,700	--	--	1,600	--	--	--	--	100,000
		05-31-95	140	--	2,600	<20	--	2,000	--	280	<12	--	87,000
		06-06-95	130	--	3,400	<20	--	1,900	--	270	<12	--	100,000
		05-15-95	130	--	3,100	<20	--	1,700	--	250	<12	--	100,000
		04-18-95	160	--	3,900	<20	--	2,300	<1	320	<12	--	120,000
11	365716094504601	06-03-95	36	--	650	<20	--	100	--	680	<12	--	5,700
12	365720094503801	03-21-94	--	--	4,600	--	--	--	--	--	--	--	140,000
		06-06-95	130	--	3,400	<20	--	2,000	--	250	<12	--	110,000
		05-15-95	150	--	3,300	<20	--	1,900	--	250	<12	--	110,000
13	365720094504001	03-29-95	160	--	4,000	<20	--	2,300	--	300	<12	--	120,000
		06-06-95	130	--	3,400	<20	--	1,900	--	260	<12	--	100,000

Table 6.--Concentrations of chemical constituents and measurements of physical parmeters--Continued

MAP NUMBER	STATION NUMBER	DATE	LITHIUM DISSOLVED (µg/L as Li) (01130)	MANGANESE, TOTAL RECOVERABLE (µg/L as Mn) (01055)	MANGANESE, DISSOLVED (µg/L as Mn) (01056)	MOLYBDENUM, DISSOLVED (µg/L as Mo) (01060)	NICKEL, TOTAL RECOVERABLE (µg/L as Ni) (01067)	NICKEL, DISSOLVED (µg/L as Ni) (01065)	SELENIUM, DISSOLVED (µg/L as Se) (01145)	STRONTIUM, DISSOLVED (µg/L as Sr) (01080)	VANADIUM, DISSOLVED (µg/L as V) (01085)	ZINC, TOTAL RECOVERABLE (µg/L as Zn) (01092)	ZINC, DISSOLVED (µg/L as Zn) (01090)
		05-15-95	140	--	3,200	<20	--	1,700	--	240	<12	--	110,000
		04-18-95	170	--	4,000	<20	--	2,400	<1	330	<12	--	120,000
14	365723094503501	03-21-94	--	--	4,500	--	--	--	--	--	--	--	160,000
		06-06-94	--	--	3,500	--	--	1,900	--	--	--	--	130,000
		03-28-95	160	--	4,100	<20	--	2,500	--	300	<12	--	120,000
		06-06-95	140	--	3,200	<20	--	2,200	--	250	<12	--	110,000
		05-15-95	150	-	3,300	<20	--	2,000	--	--	<12	--	120,000
		04-18-95	170	--	3,900	<20	--	2,500	<1	310	<12	--	120,000
15	365723094503511	06-06-94	--	--	3,800	--	--	2,300	--	--	--	--	130,000
		05-15-95	150	--	3,300	<20	--	1,900	--	260	<12	--	110,000
15	365723094503511	04-18-95	160	--	3,600	<20	--	2,500	--	300	<12	--	120,000
16	365723094503512	06-06-94	--	--	3,600	--	--	1,500	--	--	--	--	130,000
17	365723094503513	06-06-94	--	--	3,700	--	--	1,500	--	--	--	--	130,000
		04-18-95	160	--	3,900	<20	--	2,400	--	300	<12	--	120,000
18	365723094503514	06-06-94	--	--	3,600	--	--	1,500	--	--	--	--	130,000
19	365723094503520	06-10-94	--	--	3,600	--	--	2,000	--	--	--	--	120,000
		06-06-95	140	--	3,200	<20	--	2,100	--	250	<12	--	110,000
		04-18-95	160	--	3,500	<20	--	2,500	--	300	<12	--	120,000
20	365729094502901	03-21-94	--	--	3,100	--	--	--	--	--	--	--	110,000
21	365730094503301	06-08-94	--	--	5	--	--	470	--	--	--	--	52,000
22	365730094503601	11-29-93	--	--	6,900	--	--	--	--	--	--	--	240,000
		11-29-93	--	--	4,700	--	--	--	--	--	--	--	190,000
		11-29-93	--	--	5,400	--	--	3,500	--	--	--	--	210,000
		03-19-94	--	--	5,000	--	--	--	--	--	--	--	180,000
		06-21-95	--	--	--	--	--	4,300	--	--	--	--	--
		06-21-95	230	--	6,600	<30	--	4,200	--	660	54	--	230,000
		06-21-95	200	--	1,900	<20	--	2,000	--	300	<12	--	90,000
		06-21-95	200	--	2,500	<20	--	3,000	--	610	<12	--	140,000
23	365730094504001	12-01-93	--	--	5,200	--	--	3,400	--	--	--	--	210,000
		12-19-93	--	--	3,300	--	--	2,400	--	--	--	--	170,000
		12-19-93	--	--	4,000	--	--	2,400	--	--	--	--	150,000
		02-16-94	--	--	5,200	--	--	210	--	--	--	--	220,000
		06-13-94	--	--	4,600	--	--	2,600	--	--	--	--	210,000
		03-28-95	200	--	4,900	<20	--	2,500	--	550	<12	--	170,000
		01-09-95	190	4500	4,300	<20	4300	3,100	--	500	45	200000	190,000

Table 6.--Concentrations of chemical constituents and measurements of physical parmeters--Continued

MAP NUMBER	STATION NUMBER	DATE	LITHIUM DISSOLVED (µg/L as Li) (01130)	MANGANESE, TOTAL RECOVERABLE (µg/L as Mn) (01055)	MANGANESE, DISSOLVED (µg/L as Mn) (01056)	MOLYBDENUM, DISSOLVED (µg/L as Mo) (01060)	NICKEL, TOTAL RECOVERABLE (µg/L as Ni) (01067)	NICKEL, DISSOLVED (µg/L as Ni) (01065)	SELENIUM, DISSOLVED (µg/L as Se) (01145)	STRONTIUM, DISSOLVED (µg/L as Sr) (01080)	VANADIUM, DISSOLVED (µg/L as V) (01085)	ZINC, TOTAL RECOVERABLE (µg/L as Zn) (01092)	ZINC, DISSOLVED (µg/L as Zn (01090)
		06-04-85	150	--	4,500	<20	--	3,100	--	500	<12	--	190,000
24	365730094504011	06-13-84	--	--	4,000	--	--	2,600	--	--	--	--	210,000
25	365730094504601	05-15-85	29	--	19	<10	--	--	--	180	<12	--	48,000
26	365734094503601	01-09-85	75	1,900	1,900	<20	650	950	--	360	<12	67,000	69,000
27	365735094503501	03-27-85	200	4,400	3,100	<20	3,200	3,000	--	800	<12	150,000	130,000
28	365740094502901	06-05-84	--	--	5,300	--	--	2,900	--	--	--	--	200,000
29	365744094502501	06-03-85	52	--	1,200	<10	--	600	--	360	<6	--	30,000
		04-17-85	70	1,600	1,700	<20	1,200	--	--	<360	<12	37,000	44,000
30	365744094503200	03-27-85	84	2,200	1,700	<20	1,400	1,300	--	420	<12	63,000	58,000
31	365744094503201	06-05-84	--	--	5,000	--	--	2,800	--	--	--	--	180,000
		06-07-85	190	--	2,900	<20	--	3,300	--	780	<12	--	140,000
32	365746094503001	06-03-85	170	--	2,700	<20	--	2,900	--	710	<12	--	110,000
		04-17-85	190	--	4,600	<20	--	--	<1	900	32	--	140,000
33	365757094505501	11-29-83	--	--	4,900	--	--	3,600	--	--	--	--	170,000
		11-29-83	--	--	5,300	--	--	3,500	--	--	--	--	170,000
33	365757094505501	03-23-84	--	--	5,300	--	--	--	--	--	--	--	150,000
		03-23-84	--	--	4,900	--	--	--	--	--	--	--	54,000
		06-11-85	150	--	2,600	<20	--	2,900	--	880	<12	--	97,000
34	365800094504501	02-16-84	--	--	5,000	--	--	1,300	--	--	--	--	150,000
		03-27-85	170	--	4,100	<20	--	2,900	--	950	<12	--	110,000
		06-03-85	150	--	2,400	<20	--	2,500	--	860	<12	--	90,000
		01-09-85	170	3,900	3,900	<20	4,400	3,100	--	950	33	130,000	120,000
		04-17-85	160	3,700	4,100	<20	2,900	--	<1	960	<12	110,000	110,000
35	365800094505001	06-05-84	--	--	910	--	--	290	--	--	--	--	11,000
36	365807094504301	06-11-84	--	--	950	--	--	17	--	--	--	--	7,000
		01-09-85	11	140	130	<20	31	21	--	160	<12	14,000	12,000
		03-27-85	12	--	320	<10	--	23	--	190	<6	--	9,800
		06-03-85	15	--	670	<10	--	<100	--	230	<6	--	5,900
		04-17-85	11	--	430	<10	--	--	--	180	<6	--	9,100
37	365811094501301	06-11-84	--	--	560	--	--	14	--	--	--	--	310
		06-03-85	19	--	130	<10	--	<100	--	290	<6	--	270
		05-14-85	<4	120	85	<10	<100	--	--	96	<6	1,700	1,100
38	365821094504401	05-14-85	5	110	91	<10	<100	--	--	67	<6	2,500	2,100
39	365845094505201	11-29-83	--	--	3,800	--	--	2,500	--	--	--	--	120,000
		11-29-83	--	--	3,600	--	--	2,400	--	--	--	--	110,000

Table 6.--Concentrations of chemical constituents and measurements of physical parmeters--Continued

MAP NUMBER	STATION NUMBER	DATE	LITHIUM DISSOLVED (µg/L as Li) (01130)	MANGANESE, TOTAL RECOVERABLE (µg/L as Mn) (01055)	MANGANESE, DISSOLVED (µg/L as Mn) (01056)	MOLYBDENUM, DISSOLVED (µg/L as Mo) (01060)	NICKEL, TOTAL RECOVERABLE (µg/L as Ni) (01067)	NICKEL, DISSOLVED (µg/L as Ni) (01065)	SELENIUM, DISSOLVED (µg/L as Se) (01145)	STRONTIUM, DISSOLVED (µg/L as Sr) (01080)	VANADIUM, DISSOLVED (µg/L as V) (01085)	ZINC, TOTAL RECOVERABLE (µg/L as Zn) (01092)	ZINC, DISSOLVED (µg/L as Zn) (01090)
		03-22-94	--	--	3,900	--	--	--	--	--	--	--	91,000
		06-11-95	120	--	2,300	<10	--	1,900	--	990	30	--	55,000
		06-11-95	120	--	2,700	<20	--	2,000	--	910	<12	--	55,000
40	365926094495501	11-30-93	--	--	4,400	--	--	2,200	--	--	--	--	110,000
		03-22-94	--	--	4,300	--	--	--	--	--	--	--	110,000
		06-11-95	160	--	3,600	<20	--	2,300	--	990	<12	--	97,000
41	365937094511501	11-30-93	--	--	5,600	--	--	4,400	--	--	--	--	150,000
42	365942094504201	11-30-93	--	--	220	--	--	16	--	--	--	--	590
		11-30-93	--	--	9,700	--	--	510	--	--	--	--	640
		03-23-94	--	--	7,800	--	--	--	--	--	--	--	480
		06-12-95	390	--	8,200	<20	--	500	--	5,300	<12	--	530
43	365951094464501	12-01-93	--	--	2,700	--	--	520	--	--	--	--	35,000
		12-01-93	--	--	2,400	--	--	2,500	--	--	--	--	21,000
		12-01-93	--	--	5,200	--	--	1,500	--	--	--	--	150,000
		03-22-94	--	--	2,900	--	--	--	--	--	--	--	47,000
		03-22-94	--	--	2,500	--	--	--	--	--	--	--	25,000
		03-22-94	--	--	5,500	--	--	--	--	--	--	--	150,000
		06-12-95	220	--	2,300	<20	--	400	--	410	<12	--	20,000
		06-12-95	370	--	1,400	<20	--	3,000	--	600	<12	--	22,000
		06-12-95	290	--	4,700	<20	--	2,300	--	460	<12	--	140,000
44	365956094510701	06-12-94	--	--	450	--	--	16	--	--	--	--	1,000
		06-05-95	6	--	520	<10	--	<100	--	110	<6	--	990
		06-09-95	5	--	320	<10	--	<100	--	76	<6	--	1,300
45	370015094460601	06-08-94	--	--	2,500	--	--	360	--	--	--	--	48,000
46	370103094511301	12-02-93	--	--	410	--	--	62	--	--	--	--	3,300
47	370103094511701	06-08-94	--	--	160	--	--	4	--	--	--	--	140
48	370106094510701	12-02-93	--	--	6	--	--	42	--	--	--	--	16
49	370153094511101	06-12-94	--	--	220	--	--	6	--	--	--	--	190
		06-05-95	<4	--	82	<10	--	<100	--	65	<6	--	61